

Evaluation And Development Of Water Wave Theories For Engineering Application

VOLUME II

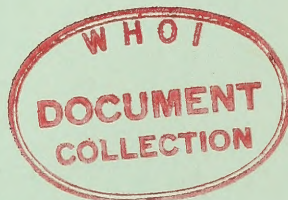
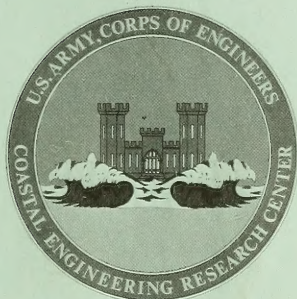
Tabulation Of Dimensionless Stream Function Theory Variables

by

R.G. Dean

SPECIAL REPORT NO.1

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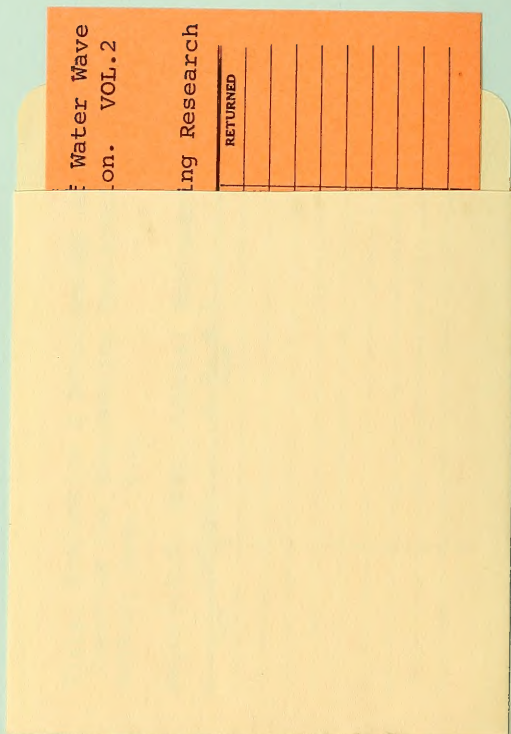
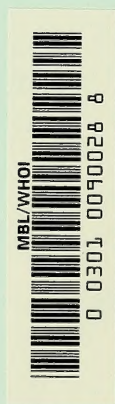
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Volume I of of this report presents the results of a research program to evaluate and develop water-wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems. Volume I describes: (1) an evaluation of the degree to which various available wave theories satisfy the nonlinear water-wave mathematical formulation and (2) a comparison of water particle velocities measured in the laboratory with those predicted by a number of available wave theories. The results indicated that Dean's Stream-Function Wave Theory provided generally better agreement with both the mathematical formulation and (Continued)		

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the laboratory data. Volume I also includes a number of examples illustrating the application of the wave tables (described below) to offshore design problems.

Based on the evaluation phase described above, a set of wave tables was developed and is presented as Volume II. The tables consist of dimensionless quantities which describe the kinematic and dynamic fields of a two-dimensional progressive water wave. In addition, quantities are included which are directly applicable to frequently required design calculations and also parameters which should be of interest to the researcher and scientist.

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I INTRODUCTION TO TABLES

The reader is urged to examine Sections IV and V of Volume I of this two-volume report before using the tables in this volume. These sections contain a detailed description of the tables and also examples which use all of the variables in the tables. It is especially important to be sure that the correct dimensionalizing quantities are used for the variables of interest.

In this Volume II, several figures and tables are presented from Volume I to facilitate the use of the tables. These figures and tables are presented without change of numbering (or lettering as the case may be).

Figure 23 presents the dimensionless wave characteristics for the 40 sets of tabulations. Tables D, E and F describe the variables tabulated and all dimensionalizing quantities. Figures 25 through 29 present the results of combined shoaling and refraction for deepwater directions of 0° , 10° , 20° , 40° and 60° , respectively.

If this set of tables is extensively used, as is hoped, undoubtedly the users will note shortcomings, omissions or develop recommendations directed toward the improved usefulness, applicability or efficiency of the tables. The author would welcome information of this type in order that future work may benefit by as wide a range of users' needs as possible.

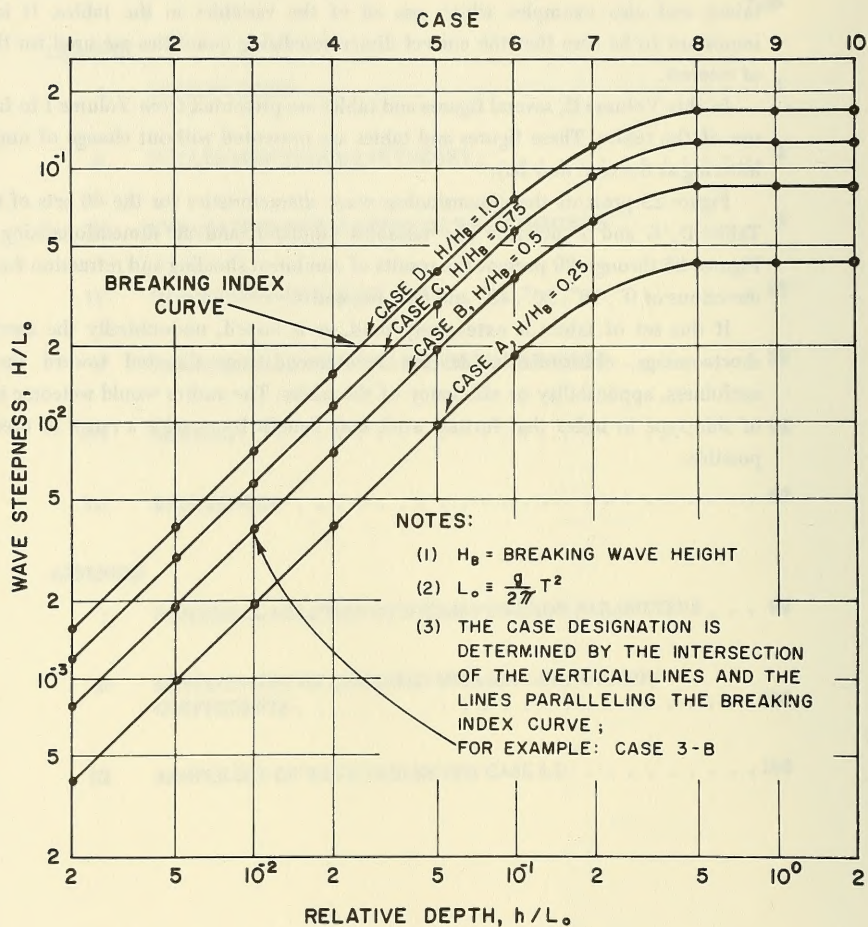


Figure 23 from Volume I showing wave steepnesses (H/L_0) and relative depths (h/L_0) of the 40 wave cases tabulated.

Tables D, E, and F from Volume I Presenting Descriptions of the Dimensionless Tabulated Variables and the Dimensionalizing Quantities Required in Their Use.

TABLE D
Internal Field Variables
(Functions of θ and S)

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Horizontal Water Particle Velocity, $u(\theta, S)$	$u(\theta, S) = - \sum_{n=1}^{NN} X(n) \left[\frac{2\pi}{L} n \right] \cosh \left[\frac{2\pi}{L} n S \right] \cos n\theta$	$\left[\frac{1}{H/T} \right] u$	(21)	I
Vertical Water Particle Velocity, $w(\theta, S)$	$w(\theta, S) = - \sum_{n=1}^{NN} X(n) \left[\frac{2\pi}{L} n \right] \sinh \left[\frac{2\pi}{L} n S \right] \sin n\theta$	$\left[\frac{1}{H/T} \right] w$	(22)	II
Horizontal Water Particle Acceleration, $\frac{Du}{Dt}$	$\frac{Du}{Dt} = (u - C) \frac{\partial u}{\partial X} + w \frac{\partial u}{\partial Z}$ Note: $C \equiv L/T$	$\left[\frac{1}{H/T^2} \right] \frac{Du}{Dt}$	(23)	III
Vertical Water Particle Acceleration, $\frac{Dw}{Dt}$	$\frac{Dw}{Dt} = (u - C) \frac{\partial w}{\partial X} + w \frac{\partial w}{\partial Z}$	$\left[\frac{1}{H/T^2} \right] \frac{Dw}{Dt}$	(24)	IV
Drag Force Component up to a Level, S , $F_D(\theta, S)$	$F_D(\theta, S) = \frac{C_D \rho D}{2} \int_0^S u u ds$ Note: C_D = drag coefficient; D = piling diameter; ρ = mass density of water	$\left(\frac{C_D \rho D^2}{H^3/T^3} \right) F_D$	(25)	V

TABLE D—Continued

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Inertia Force Component up to a Level, S , $F_I(\theta, S)$	$F_I(\theta, S) = \frac{C_M \rho \pi D^2}{4} \int_0^S \frac{Du}{Dt} ds'$ Note: C_M = inertia coefficient	$\left(\frac{C_M \rho \pi D^2}{4} \frac{(H/T^2) h}{h} \right) F_I$	(26)	VI
Drag Moment Component up to a Level, S , $M_D(\theta, S)$	$M_D(\theta, S) = \frac{C_D \rho D}{2} \int_0^S s' u u ds'$	$\left(\frac{C_D \rho D}{2} \frac{(H/T^2) h^2}{h^2} \right) M_D$	(27)	VII
Inertia Moment Component up to a Level, S , $M_I(\theta, S)$	$M_I(\theta, S) = \frac{C_M \rho \pi D^2}{4} \int_0^S s' \frac{Du}{Dt} ds'$	$\left(\frac{C_M \rho \pi D^2}{4} \frac{(H/T^2) h^2}{h^2} \right) M_I$	(28)	VIII
Dynamic Pressure Component $P_D(\theta, S)$	$P_D(\theta, S) = \gamma \bar{Q} - \frac{\rho}{2} (u - C)^2 + w^2 + \frac{\rho}{2} C^2$ Note: γ = specific weight of water $\equiv \rho g$; Q is defined in Equation 8; \bar{Q} is the average value of Q	$\left(\frac{2}{\gamma H} \right) P_D$	(29)	IX

TABLE E
Variables Depending on θ Only

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Water Surface Displacement, $\eta(\theta)$	$\eta(\theta) = \frac{T}{L} \psi \eta - \frac{T}{L} \sum_{n=1}^{NN} X(n) \sinh \left[\frac{2\pi}{L} n(h + \eta) \right] \cos(n\theta)$	$\left[\frac{1}{H} \right] \eta(\theta)$	(30)	I - IX
Total Drag Force Component, $F_D(\theta)$	Same as Eq. (25), except upper limit is $h + \eta(\theta)$	$\left[\frac{C_D \rho D^2 (H/T)^2 h}{2} \right] F_D$	(31)	V (labeled "Surface")
Total Inertia Force Component, $F_I(\theta)$	Same as Eq. (26), except upper limit is $h + \eta(\theta)$	$\left[\frac{C_M \rho \pi^2 D^2 (H/T)^2 h}{4} \right] F_I$	(32)	VI (labeled "Surface")
Total Drag Moment Component, $M_D(\theta)$	Same as Eq. (27), except upper limit is $h + \eta(\theta)$	$\left[\frac{C_D \rho D^2 (H/T)^2 h^2}{2} \right] M_D$	(33)	VII (labeled "Surface")
Total Inertia Moment Component, $M_I(\theta)$	Same as Eq. (28) except upper limit is $h + \eta(\theta)$	$\left[\frac{C_M \rho \pi^2 D^2 (H/T)^2 h^2}{4} \right] M_I$	(34)	VIII (labeled "Surface")
Kinematic Free Surface Boundary Condition Error, $\epsilon_1(\theta)$	$\epsilon_1(\theta) = \frac{\partial \eta}{\partial x} - \frac{w}{u - C}$	Expression given is in dimensionless form	(35)	X Item 1 Linear Theory Item 2 Stream Function Theory
Dynamic Free Surface Boundary Condition Error, $\epsilon_2(\theta)$	$\epsilon_2(\theta) = Q(\theta) - \bar{Q}$ Note: $\bar{Q} \equiv \bar{Q}(\theta)$	$\left(\frac{1}{H} \right) \epsilon_2$	(36)	X Item 3, Item 4, Stream Function Theory

TABLE F
Overall Variables
(Do Not Depend on θ or S)

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Wave Length, L	L is determined from Stream function solution (no explicit expression)	$\left(\frac{2\pi}{gT}\right) L$	(37)	XI Item 1
Average Potential Energy, P_E	$P_E = \frac{\gamma}{4\pi} \int_0^{2\pi} \eta^2(\theta) d\theta$	$\left(\frac{8}{\gamma H^2}\right) P_E$	(38)	XI Item 2
Average Kinetic Energy, KE	$KE = \frac{\rho}{4\pi} \int_0^{2\pi} \int_0^{h+\eta} (u^2 + w^2) ds d\theta$	$\left(\frac{8}{\gamma H^2}\right) KE$	(39)	XI Item 3
Average Total Energy, TE	$TE = PE + KE$	$\left(\frac{8}{\gamma H^2}\right) TE$	(40)	XI Item 4
Average Total Energy Flux, F_{TE}	$F_{TE} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} u \left(p_D + \rho g z + \frac{\rho}{2} (u^2 + w^2) \right) ds d\theta$	$\left(\frac{8}{\gamma H^2 L/T}\right) F_{TE}$	(41)	XI Item 5
Group Velocity, C_G	$C_G = \frac{F_{TE}}{TE}$	$\left(\frac{1}{L/T}\right) C_G$	(42)	XI Item 6
Average Momentum M	$M = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} \rho u ds d\theta$	$\left(\frac{8L/T}{\gamma H^2}\right) M$	(43)	XI Item 7

TABLE F—Continued

Variable	Expression for Variable	Dimensionless Form	Equation No.	Presented in Table
Average Momentum Flux, in Wave Direction, F_{m_x}	$F_{m_x} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} \left(p_D + \rho u^2 \right) ds d\theta$	$\left(\frac{8}{\gamma H^2} \right) F_{m_x}$	(44)	XI Item 8
Average Momentum Flux, Transverse to Wave Direction F_{m_y}	$F_{m_y} = \frac{1}{2\pi} \int_0^{2\pi} \int_0^{h+\eta} p_D ds d\theta$	$\left(\frac{8}{\gamma H^2} \right) F_{m_y}$	(45)	XI Item 9
Root-Mean-Square (RMS) and Maximum (Max) Kinematic Free Surface Boundary Condition Errors, $\sqrt{\epsilon_1^2}$ and $ \epsilon_1 _{\max}$	See Eq. (35)	Expression Given is in Dimensionless Form	(46)	XI Items 10 & 12
RMS and Max Dynamic Free Surface Boundary Condition Errors, $\sqrt{\epsilon_2^2}$ and $ \epsilon_2 _{\max}$	See Eq. (36)	$\left(\frac{1}{H} \right) \sqrt{\epsilon_2^2} \text{ and } \left(\frac{1}{H} \right) \epsilon_2 _{\max}$	(47)	XI Items 11 & 13
Kinematic Free Surface Breaking Parameter, β_1	$\beta_1 = \frac{u}{C}, u \text{ evaluated at } \left(\theta = 0^\circ \right. \\ \left. S = h + \eta \right)$	Expression Given is in Dimensionless Form	(48)	XI Item 14
Dynamic Free Surface Breaking Parameter β_2	$\beta_2 = - \frac{1}{g} \frac{Dw}{Dt}, Dw \text{ evaluated at } \left(\theta = 0^\circ \right. \\ \left. S = h + \eta \right)$	Expression Given is in Dimensionless Form	(49)	XI Item 15

Note: In addition to values tabulated, the results include combined refraction/shoaling effects over idealized bathymetry; these results are presented in graphical form and will be described later.

Figures 25, 26, 27, 28, and 29 from Volume I Presenting Graphical Results for Combined Shoaling-Refraction for Deepwater Wave Directions, $\alpha_o = 0^\circ, 10^\circ, 20^\circ, 40^\circ,$ and 60° , Respectively.

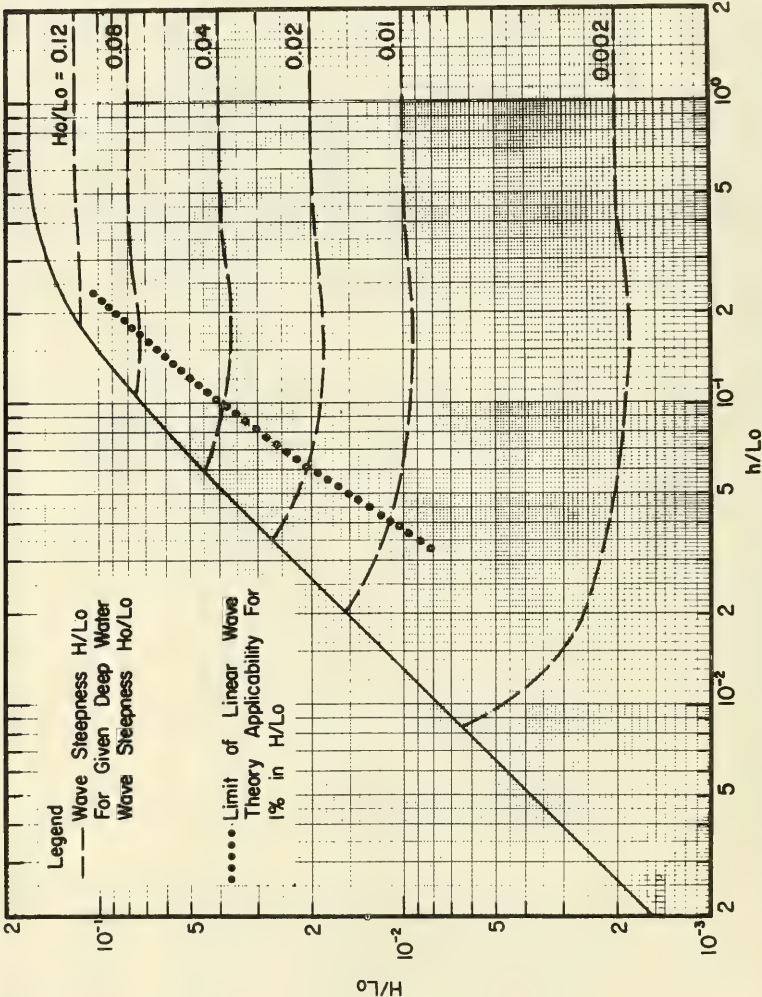


Figure 25. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 0^\circ$.

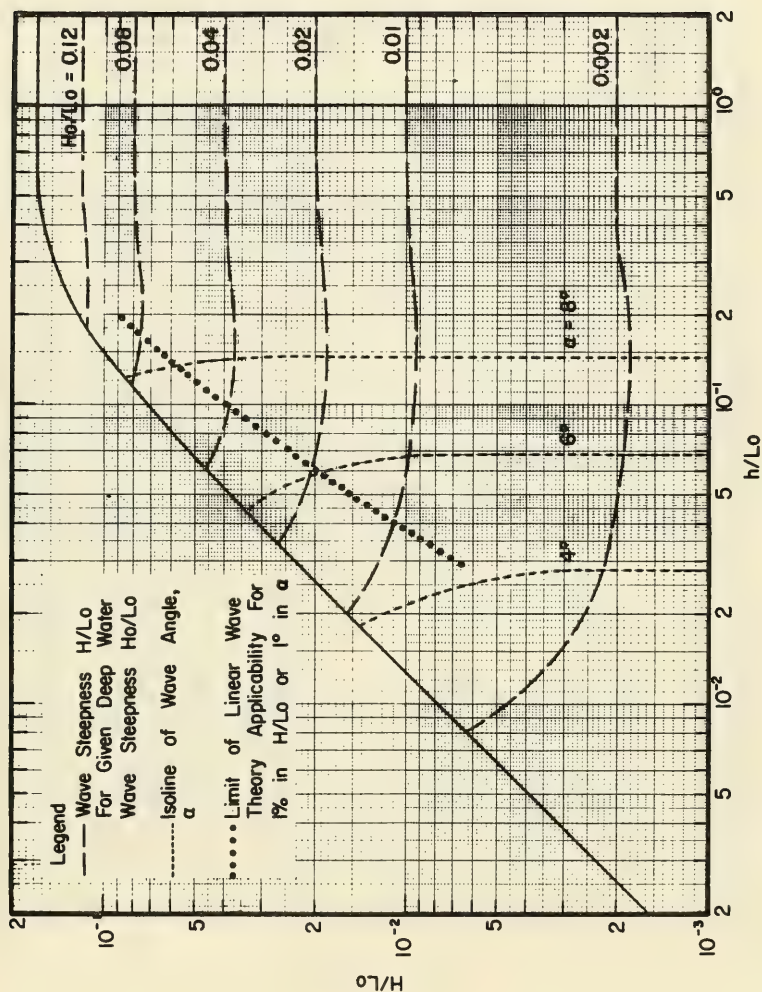


Figure 26. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 10^\circ$.

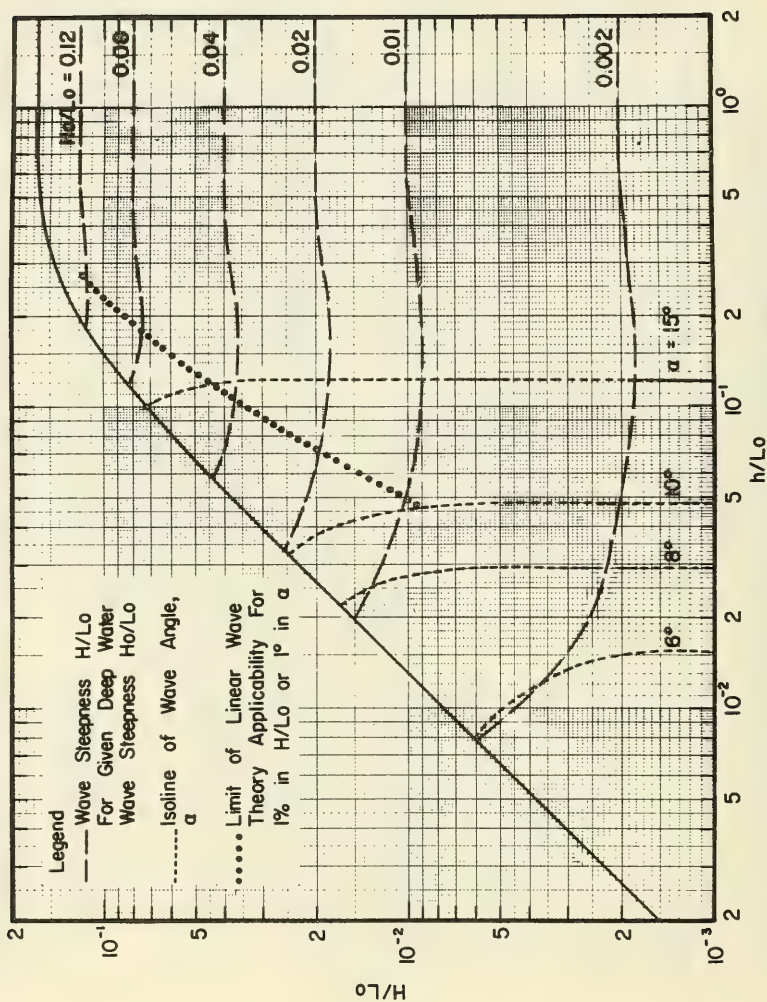


Figure 27. Combined shoaling-refraction for a deepwater wave direction, $\alpha_0 = 20^\circ$.

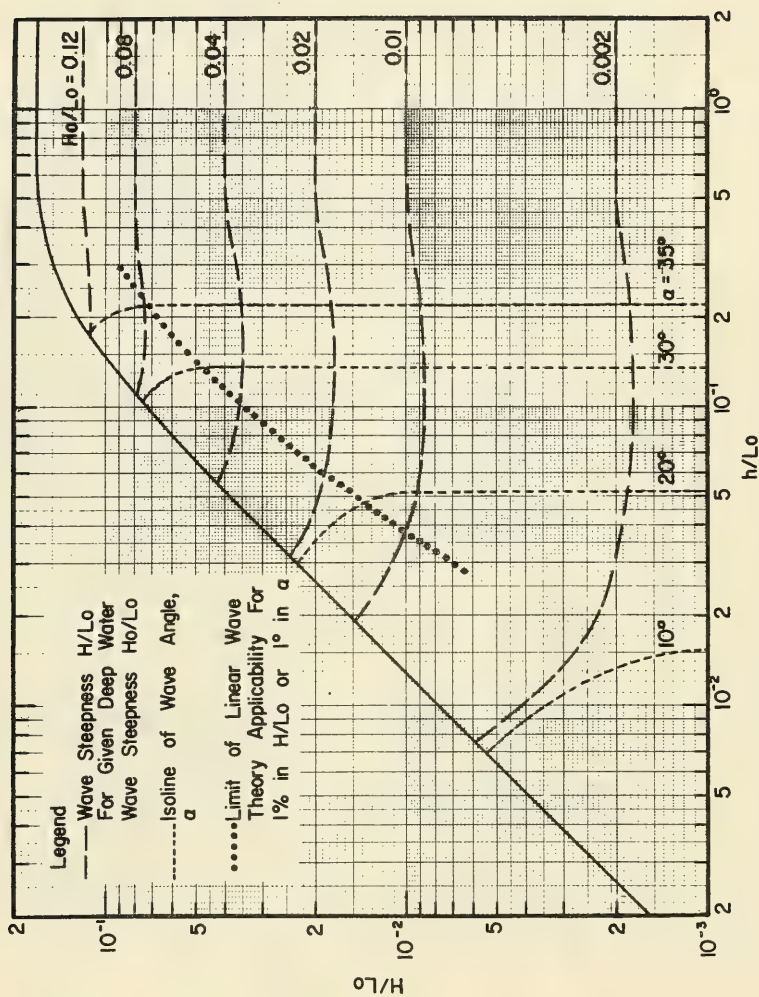


Figure 28. Combined shoaling-refraction for a deepwater wave direction, $\alpha_o = 40^\circ$.

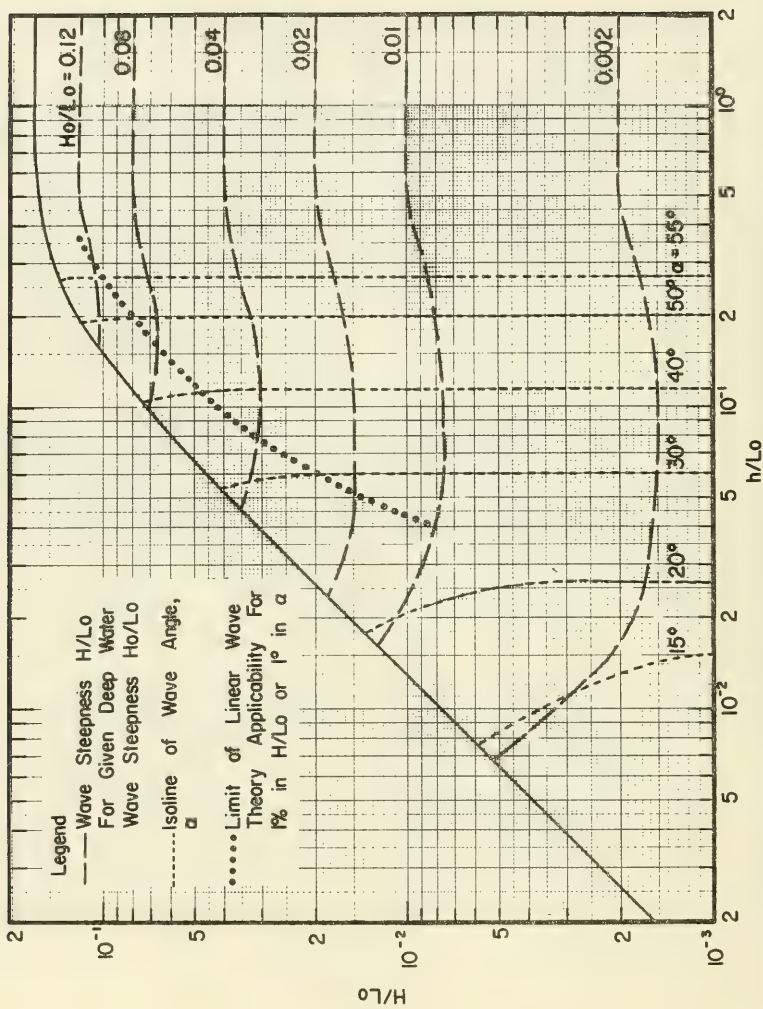


Figure 29. Combined shoaling-refraction for a deepwater wave direction, $\alpha_0 = 60^\circ$.

II STREAM-FUNCTION THEORY TABULATIONS IN DIMENSIONLESS FORM FOR 40 SETS OF WAVE CHARACTERISTICS

CASE 1=A

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{.5} T^{**2}$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .00390 DPT/LO = .00200
 H/DPT = .194829
 L/LO = .119648 PSI/(G*H*T) = -.000178

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.287475-01	X(2)/(H*T*G) =	-.128289+01
X(3)/(H*T*G) =	-.713786+02	X(4)/(H*T*G) =	-.422235+02
X(5)/(H*T*G) =	-.250337+02	X(6)/(H*T*G) =	-.153772+02
X(7)/(H*T*G) =	-.927237+03	X(8)/(H*T*G) =	-.455664+03
X(9)/(H*T*G) =	-.332623+03	X(10)/(H*T*G) =	-.197489+03
X(11)/(H*T*G) =	-.116371+03	X(12)/(H*T*G) =	-.468235+04
X(13)/(H*T*G) =	-.396098+04	X(14)/(H*T*G) =	-.228822+04
X(15)/(H*T*G) =	-.130467+04	X(16)/(H*T*G) =	-.741167+05
X(17)/(H*T*G) =	-.412900+05	X(18)/(H*T*G) =	-.230502+05
X(19)/(H*T*G) =	-.124741+05		

CASE 1-A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.910	.600	.199	.009	.080	.090	.090	.090	.090
	45.0%	18.0%	-136.6%	*****	499.3%	244.1%	3.8%	-323.9%	-453.4%
SURFACE	51.990	33.565	10.540	.258	-4.434	-4.902	-4.921	-4.936	-4.937
S/DEPTH=1.1	45.9%	17.5%	-150.6%	*****	507.3%	248.3%	1.0%	-335.2%	-467.9%
	50.923	33.528							
	44.8%	17.4%							
S/DEPTH=1.0	49.681	33.311	10.705	.262					
	43.5%	17.0%	-146.4%	*****					
S/DEPTH= .9	46.585	33.107	11.096	.495	-4.407	-4.901	-4.923	-4.935	-4.936
	42.3%	16.6%	-137.4%	*****	508.9%	248.1%	1.1%	-335.2%	-468.0%
S/DEPTH= .8	47.626	32.920	11.458	.705	-4.378	-4.900	-4.924	-4.935	-4.934
	41.2%	16.2%	-130.1%	*****	511.2%	247.9%	1.2%	-334.8%	-467.6%
S/DEPTH= .7	46.798	32.750	11.733	.889	-4.353	-4.899	-4.925	-4.934	-4.933
	40.12%	15.9%	-124.1%	*****	513.2%	247.8%	1.3%	-334.4%	-4.933
S/DEPTH= .6	46.092	32.600	11.985	1.050	-4.331	-4.898	-4.926	-4.934	-4.933
	39.3%	15.5%	-119.2%	*****	514.9%	247.7%	1.4%	-334.1%	-466.8%
S/DEPTH= .5	45.504	32.471	12.195	1.186	-4.312	-4.897	-4.926	-4.933	-4.932
	38.6%	15.3%	-115.3%	*****	516.8%	247.7%	1.5%	-333.8%	-466.5%
S/DEPTH= .4	45.029	32.365	12.365	1.297	-4.297	-4.896	-4.927	-4.933	-4.931
	38.0%	15.0%	-112.2%	*****	517.7%	247.6%	1.6%	-333.6%	-466.2%
S/DEPTH= .3	44.663	32.281	12.495	1.384	-4.285	-4.896	-4.927	-4.933	-4.931
	37.5%	14.9%	-109.9%	*****	518.7%	247.6%	1.6%	-333.4%	-466.0%
S/DEPTH= .2	44.404	32.220	12.588	1.445	-4.277	-4.895	-4.927	-4.933	-4.931
	37.12%	14.7%	-108.5%	*****	519.8%	247.5%	1.7%	-333.3%	-465.9%
S/DEPTH= .1	44.1249	32.184	12.643	1.483	-4.272	-4.895	-4.927	-4.933	-4.931
	37.0%	14.6%	-107.3%	*****	519.8%	247.5%	1.7%	-333.2%	-465.8%
S/DEPTH= .0	44.197	32.172	12.661	1.495	-4.270	-4.895	-4.928	-4.933	-4.931
	36.9%	14.6%	-107.0%	*****	519.8%	247.5%	1.7%	-333.2%	-465.7%

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.910	.600	.199	.009	-.060	-.090	-.090	-.090	-.090
	45.0%	18.0%	-136.6%	*****	499.3%	244.1%	3.8%	-323.9%	-453.4%
SURFACE	.000	896.600	553.361	215.459	23.890	-1.019	1.415	1.340	.000
	*****	96.9%	90.1%	62.4%	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	888.554							
	*****	96.9%							
S/DEPTH=1.0	.000	844.403	553.970	215.575					
	*****	96.7%	90.1%	62.5%					
S/DEPTH= .9	.000	805.563	554.940	222.042	24.598	-.632	1.209	1.141	.000
	*****	96.6%	90.1%	63.7%	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	771.685	555.230	227.318	25.395	-.240	1.005	.942	.000
	*****	96.4%	90.1%	64.6%	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	742.466	555.050	232.900	26.131	.080	.842	.782	.000
	*****	96.3%	90.2%	65.4%	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	717.646	554.573	237.290	26.791	.338	.715	.655	.000
	*****	96.2%	90.2%	66.1%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	697.005	553.945	240.991	27.367	.544	.613	.556	.000
	*****	96.0%	90.1%	66.6%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	680.360	553.281	244.008	27.848	.703	.537	.480	.000
	*****	95.9%	90.1%	67.1%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	667.563	552.673	246.348	28.230	.823	.480	.424	.000
	*****	95.9%	90.1%	67.4%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	658.502	552.190	248.015	28.506	.905	.442	.385	.000
	*****	95.8%	90.1%	67.6%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	653.097	551.882	249.013	28.673	.954	.420	.363	.000
	*****	95.8%	90.1%	67.8%	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	651.301	551.776	249.346	28.729	.970	.412	.355	.000
	*****	95.8%	90.1%	67.8%	*****	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD, ...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	45.0%	.910	.600	.190	.009	.080	.090	.090	.090
		16.0%	136.6%	*****	499.3%	244.1%	3.6%	-323.9%	-453.4%
SURFACE	-717.560	-69.976	270.840	149.656	20.160	.695	-1.031	.606	1.095
S/DEPTH=1.1	97.3%	72.6%	106.7%	111.0%	*****	*****	*****	*****	*****
	-658.339	-70.433							
S/DEPTH=1.0	97.0%	72.8%							
	-585.515	-71.491							
S/DEPTH= .9	97.0%	75.5%	258.381	149.407					
	-516.577	-70.089	227.402	134.770	18.439	.678	.860	.507	.909
S/DEPTH= .8	96.9%	77.5%	106.6%	110.1%	*****	*****	*****	*****	*****
	-451.049	-68.646	198.053	120.019	16.409	.641	.687	.407	.722
S/DEPTH= .7	96.6%	79.0%	106.7%	110.1%	*****	*****	*****	*****	*****
	-388.480	-61.519	170.150	105.174	14.382	.589	.545	.325	.570
S/DEPTH= .6	96.8%	80.1%	106.8%	110.1%	*****	*****	*****	*****	*****
	-328.443	-55.017	143.510	90.258	12.352	.524	.427	.256	.445
S/DEPTH= .5	96.8%	80.9%	106.9%	110.1%	*****	*****	*****	*****	*****
	-270.537	-47.404	117.951	75.286	10.314	.450	.329	.199	.342
S/DEPTH= .4	96.7%	81.6%	107.0%	110.1%	*****	*****	*****	*****	*****
	-214.377	-38.913	93.288	60.272	8.267	.369	.247	.150	.255
S/DEPTH= .3	96.7%	82.0%	107.1%	110.0%	*****	*****	*****	*****	*****
	-159.594	-29.748	69.341	45.228	6.210	.281	.175	.107	.181
S/DEPTH= .2	96.7%	*****	107.2%	110.0%	*****	*****	*****	*****	*****
	-105.833	-20.096	45.931	30.163	4.145	.190	.113	.069	.116
S/DEPTH= .1	96.6%	*****	107.2%	*****	*****	*****	*****	*****	*****
	-52.748	-10.126	22.876	15.084	2.074	.096	.055	.034	.057
S/DEPTH= .0	96.6%	*****	*****	*****	*****	*****	*****	*****	*****
	-0.00	-0.00	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA = ETA/HEIGHT=	0 .910 45.0%	10.0 .600 18.0%	20.0 .199 136.6%	30.0 .009 490.3%	50.0 -.080 244.1%	75.0 -.090 3.8%	100.0 -.090 3.8%	130.0 -.090 -323.9%	180.0 -.090 -453.4%
SURFACE	2574.030	1191.188	149.314	1.309	-18.412	23.564	23.836	23.912	23.902
S/DEPTH=1.1	66.6%	30.1%	405.7%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	2169.607	1172.094	28.9%	1.309	*****	*****	*****	*****	*****
S/DEPTH=.9	1875.398	950.139	367.2%	1.294	*****	*****	*****	*****	*****
S/DEPTH=.8	1644.084	841.159	120.353	1.257	*****	*****	*****	*****	*****
S/DEPTH=.7	1421.281	733.354	106.921	1.193	*****	*****	*****	*****	*****
S/DEPTH=.6	1205.858	626.598	92.848	1.098	*****	*****	*****	*****	*****
S/DEPTH=.5	995.999	520.751	78.222	.973	*****	*****	*****	*****	*****
S/DEPTH=.4	791.177	415.671	63.134	.818	*****	*****	*****	*****	*****
S/DEPTH=.3	590.141	311.208	47.675	.638	*****	*****	*****	*****	*****
S/DEPTH=.2	391.897	207.242	31.938	.437	*****	*****	*****	*****	*****
S/DEPTH=.1	195.492	103.528	16.015	.222	*****	*****	*****	*****	*****
S/DEPTH=.0	0.000	0.000	0.000	0.000	*****	*****	*****	*****	*****

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT =	45.0%	9.10	.600	.199	.009	.080	.090	.090	.090
		18.0%	-136.6%	*****	*****	499.3%	244.1%	3.6%	-323.9%
		*****	*****	*****	*****	*****	*****	*****	*****
SURFACE	0.00	815.575	575.093	238.514	26.612	.364	.692	.633	.000
	*****	96.3%	89.6%	63.4%	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	800.431							
	*****	96.2%							
S/DEPTH=1.0	.000	713.829	553.675	238.145		.431	.584	.532	.000
	*****	96.1%	90.1%	66.2%		*****	*****	*****	*****
S/DEPTH= .9	.000	631.373	498.223	216.259	24.567	.474	.474	.428	.000
	*****	96.1%	90.1%	66.5%	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	552.551	442.710	193.760	22.067	.482	.582	.342	.000
	*****	96.0%	90.1%	66.8%	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	476.881	387.193	170.718	19.490	.460	.304	.270	.000
	*****	96.0%	90.1%	67.0%	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	403.911	331.710	147.203	16.844	.416	.238	.210	.000
	*****	95.9%	90.1%	67.2%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	333.212	276.283	123.283	14.135	.353	.181	.158	.000
	*****	95.9%	90.1%	67.4%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	264.377	220.922	99.028	11.573	.276	.130	.113	.000
	*****	95.8%	90.1%	67.5%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	197.012	165.625	74.504	8.569	.190	.064	.073	.000
	*****	95.8%	90.1%	67.6%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	130.740	110.383	49.780	5.731	.096	.041	.036	.000
	*****	95.8%	90.1%	67.7%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	65.190	55.181	24.924	2.671	.000	.000	.000	.000
	*****	95.8%	90.1%	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	*****	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	45.0%	60.0	69.0	79.0	88.0	94.1%	99.0	109.0	145.4%
		18.0%	136.6%	*****	499.3%	244.1%	5.8%	-323.9%	-453.4%
SURFACE	1598.651	674.935	73.097	*****	9.499	-11.582	-11.704	-11.744	-11.745
S/DEPTH=1.1	70.4%	32.2%	*****	*****	*****	*****	*****	*****	*****
	1365.838	653.769	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	65.4%	30.0%	68.647	*****	448	*****	*****	*****	*****
	1100.175	536.495	*****	*****	434	*****	*****	*****	*****
S/DEPTH=.9	64.3%	29.1%	57.356	*****	434	*****	*****	*****	*****
	870.855	431.621	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	63.0%	28.7%	*****	*****	*****	*****	*****	*****	*****
	674.161	339.078	46.565	*****	403	*****	*****	*****	*****
S/DEPTH=.7	62.4%	28.4%	*****	*****	*****	*****	*****	*****	*****
	506.993	288.215	36.497	*****	356	*****	*****	*****	*****
S/DEPTH=.6	62.2%	28.0%	*****	*****	*****	*****	*****	*****	*****
	366.784	188.815	27.354	*****	294	*****	*****	*****	*****
S/DEPTH=.5	61.7%	27.8%	*****	*****	*****	*****	*****	*****	*****
	251.427	130.592	19.314	*****	226	*****	*****	*****	*****
S/DEPTH=.4	61.2%	27.5%	*****	*****	*****	*****	*****	*****	*****
	159.221	63.300	12.528	*****	156	*****	*****	*****	*****
S/DEPTH=.3	60.8%	27.3%	*****	*****	*****	*****	*****	*****	*****
	88.831	46.734	7.120	*****	993	*****	*****	*****	*****
S/DEPTH=.2	60.5%	20.732	3.168	*****	043	*****	*****	*****	*****
	39.251	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	9.779	5.177	801	*****	011	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.910	.600	.199	.009	.090	.090	.090	.090
	45.0%	18.0%	=136.6%	*****	499.3%	244.1%	=323.9%	=453.4%
SURFACE	.000	480.530	299.002	116.633	12.696	.027	.415	.386
	*****	96.5%	86.1%	59.3%	*****	*****	*****	*****
S/DEPTH=1.1	.000	463.742						
	*****	96.4%						
S/DEPTH=1.0	.000	372.773	277.170	116.264				
	*****	90.3%	90.1%	65.3%				
S/DEPTH= .9	.000	294.408	224.492	95.477	10.771	.090	.314	.289
	*****	96.2%	90.1%	65.8%	*****	*****	*****	*****
S/DEPTH= .8	.000	227.381	177.306	76.358	8.646	.127	.220	.201
	*****	96.1%	90.1%	66.3%	*****	*****	*****	*****
S/DEPTH= .7	.000	170.604	135.668	59.081	6.714	.133	.151	.137
	*****	96.0%	90.1%	66.6%	*****	*****	*****	*****
S/DEPTH= .6	.000	123.153	98.603	43.800	4.994	.119	.100	.090
	*****	96.0%	90.1%	66.9%	*****	*****	*****	*****
S/DEPTH= .5	.000	84.252	69.118	30.647	3.505	.095	.064	.057
	*****	95.9%	90.1%	67.2%	*****	*****	*****	*****
S/DEPTH= .4	.000	53.262	44.205	19.734	2.263	.067	.038	.033
	*****	95.9%	90.1%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	28.674	24.851	11.153	1.282	.040	.020	.018
	*****	95.8%	90.1%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	13.098	11.040	4.974	.572	.019	.009	.007
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	3.261	2.759	1.246	.144	.005	.002	.002
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	45.0%	.910	.600	.199	.009	.080	.090	.090	.090
		18.0%	-136.6%	*****	499.3%	244.1%	3.8%	323.0%	-453.4%
SURFACE	1.821	1.203	.397	.017	.0162	.0180	.0180	.0181	.0181
S/DEPTH=1.1	46.4%	20.0%	-132.3%	*****	500.3%	255.4%	16.0%	325.5%	-465.4%
S/DEPTH=1.0	45.4%	19.9%							
S/DEPTH= .9	1.748	1.197	.403	.018					
S/DEPTH= .8	44.2%	19.7%	-128.3%	*****	502.2%	255.3%	16.2%	325.0%	-465.0%
S/DEPTH= .7	1.712	1.193	.419	.027	.0161	.0180	.0181	.0181	.0181
S/DEPTH= .6	43.1%	19.5%	-119.6%	*****	504.6%	255.12%	16.4%	325.0%	-465.0%
S/DEPTH= .5	1.682	1.188	.432	.035	.0159	.0180	.0181	.0181	.0181
S/DEPTH= .4	42.1%	19.3%	-112.5%	*****	506.8%	255.02%	16.5%	324.0%	-464.0%
S/DEPTH= .3	1.655	1.184	.444	.042	.0158	.0180	.0181	.0181	.0181
S/DEPTH= .2	41.2%	19.1%	-106.7%	*****	508.7%	255.1%	16.7%	324.0%	-464.0%
S/DEPTH= .1	1.632	1.181	.454	.048	.0158	.0180	.0181	.0181	.0181
S/DEPTH= .0	40.5%	18.9%	-102.0%	*****	510.4%	255.1%	16.8%	323.0%	-463.0%
S/DEPTH= .9	1.613	1.177	.462	.053	.0157	.0179	.0181	.0181	.0181
S/DEPTH= .8	39.8%	18.7%	-98.3%	*****	511.7%	255.1%	16.9%	323.0%	-463.0%
S/DEPTH= .7	1.598	1.175	.469	.058	.0156	.0179	.0181	.0181	.0181
S/DEPTH= .6	39.3%	18.5%	-95.3%	*****	512.6%	255.0%	16.9%	323.0%	-463.0%
S/DEPTH= .5	1.586	1.172	.474	.061	.0156	.0179	.0181	.0181	.0181
S/DEPTH= .4	38.8%	18.4%	-93.1%	*****	513.6%	255.0%	17.0%	323.0%	-463.0%
S/DEPTH= .3	1.577	1.171	.478	.063	.0155	.0179	.0181	.0181	.0181
S/DEPTH= .2	38.5%	18.3%	-91.6%	*****	514.0%	255.0%	17.0%	323.0%	-463.0%
S/DEPTH= .1	1.572	1.170	.480	.065	.0155	.0179	.0181	.0181	.0181
S/DEPTH= .0	38.3%	18.3%	-90.7%	*****	514.2%	255.0%	17.0%	323.0%	-463.0%
S/DEPTH= .9	1.571	1.170	.481	.065	.0155	.0179	.0181	.0181	.0181
S/DEPTH= .8	38.3%	18.3%	-90.4%	*****	514.2%	255.0%	17.0%	323.0%	-463.0%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.001	.001	.001	.001	.000	.001	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.012	.011	.009	.006	.002	.010	.011	.002	.012
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.001	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	
	.120 (6.5%)	
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	
	.205 (=143.5%)	
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	
	.218 (=130.4%)	
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	
	.424 (=156.7%)	
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	
	.417 (=138.8%)	
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	
	.985 (=.9%)	
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	
	.434 (=130.4%)	
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	
	.606 (=146.8%)	
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	
	.189 (=162.6%)	

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.000761	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.006315	STREAM FUNCTION	.000319
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001142	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011790	STREAM FUNCTION	.001154
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.097858	STREAM FUNCTION	.169314
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.001211	STREAM FUNCTION	.044500

CASE 1=B

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28318)^{.5} T^{.2}$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .000779 DPT/LO = .002000
 H/DPT = .389717
 L/LO = .128262 PSI/(G*H*T) = -.000246

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.207144e+01	X(2)/(H*T*G) =	-.973663e+02
X(3)/(H*T*G) =	-.585442e+02	X(4)/(H*T*G) =	-.382933e+02
X(5)/(H*T*G) =	-.258161e+02	X(6)/(H*T*G) =	-.176628e+02
X(7)/(H*T*G) =	-.120946e+02	X(8)/(H*T*G) =	-.829635e+03
X(9)/(H*T*G) =	-.565533e+03	X(10)/(H*T*G) =	-.384799e+03
X(11)/(H*T*G) =	-.259436e+03	X(12)/(H*T*G) =	-.174668e+03
X(13)/(H*T*G) =	-.116093e+03	X(14)/(H*T*G) =	-.771778e+04
X(15)/(H*T*G) =	-.504252e+04	X(16)/(H*T*G) =	-.330672e+04
X(17)/(H*T*G) =	-.211748e+04	X(18)/(H*T*G) =	-.137184e+04
X(19)/(H*T*G) =	-.859499e+05		

CASE 1=B

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	856.2%	*****	621.2%	310.5%	41.7%	518.6%	710.5%
SURFACE									
S/DEPTH=1.0	54.619	22.857	2.222	2.204	3.340	3.238	3.207	3.291	3.287
	48.5%	21.3%	*****	*****	641.1%	324.5%	51.9%	552.3%	752.1%
S/DEPTH=1.3	53.056								
	100.0%								
S/DEPTH=1.2	50.901								
	44.7%								
S/DEPTH=1.1	48.995	22.991							
	42.6%	20.4%							
S/DEPTH=1.0	47.317	23.172	2.314						
	40.7%	19.3%	*****						
S/DEPTH= .9	45.848	23.311	2.762	2.098	3.320	3.241	3.213	3.287	3.280
	38.8%	18.4%	853.6%	*****	642.9%	321.9%	51.5%	553.1%	753.9%
S/DEPTH= .8	44.572	23.417	3.161	1.985	3.297	3.244	3.221	3.282	3.272
	37.2%	17.8%	732.5%	*****	646.1%	323.4%	51.0%	553.6%	755.9%
S/DEPTH= .7	43.475	23.495	3.511	1.884	3.278	3.247	3.227	3.279	3.266
	35.6%	17.3%	648.8%	*****	648.7%	323.1%	50.6%	553.7%	756.7%
S/DEPTH= .6	42.547	23.553	3.813	1.796	3.263	3.249	3.232	3.276	3.261
	34.3%	16.9%	589.0%	*****	650.8%	322.7%	50.2%	553.6%	757.2%
S/DEPTH= .5	41.777	23.594	4.067	1.721	3.250	3.250	3.236	3.274	3.258
	33.1%	16.6%	545.6%	*****	652.5%	322.5%	49.9%	553.8%	757.7%
S/DEPTH= .4	41.157	23.623	4.273	1.660	3.241	3.251	3.239	3.272	3.255
	32.2%	16.4%	514.0%	*****	653.9%	322.3%	49.7%	553.6%	757.9%
S/DEPTH= .3	40.682	23.643	4.433	1.612	3.233	3.252	3.241	3.271	3.253
	31.4%	16.3%	491.6%	*****	654.9%	322.1%	49.5%	553.7%	758.1%
S/DEPTH= .2	40.345	23.655	4.547	1.577	3.228	3.253	3.243	3.270	3.251
	30.8%	16.2%	476.6%	*****	656.6%	322.0%	49.4%	553.7%	758.2%
S/DEPTH= .1	40.145	23.662	4.616	1.557	3.225	3.253	3.243	3.269	3.250
	30.5%	16.1%	468.0%	*****	656.0%	321.9%	49.4%	553.7%	758.3%
S/DEPTH= .0	40.078	23.664	4.638	1.550	3.224	3.253	3.244	3.269	3.250
	30.4%	16.1%	465.1%	*****	656.1%	321.9%	49.3%	553.7%	758.3%

CASE 1=B

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	-859.2%	*****	621.2%	310.5%	-41.7%	518.6%	-710.5%
SURFACE	.000	18.751	5.852	1.549	.134	-.101	.066	.062	.000
	*****	96.5%	78.3%	-18.5%	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH= .9	.000	17.510	5.764	1.425	.120	-.087	.057	.053	.000
	*****	96.6%	81.4%	.9%	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	13.729	5.280	.971	.103	-.071	.046	.043	.000
	*****	96.4%	81.7%	1.276	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	11.985	4.764	1.7%	.087	-.057	.037	.035	.000
	*****	96.4%	82.0%	1.125	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	10.320	4.220	2.4%	.073	-.045	.029	.028	.000
	*****	96.3%	82.2%	3.1%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	8.724	3.655	.814	.059	-.035	.023	.022	.000
	*****	96.3%	82.4%	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	7.185	3.071	.654	.047	-.027	.017	.017	.000
	*****	96.2%	82.5%	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	5.693	2.473	.493	.035	-.019	.013	.012	.000
	*****	96.2%	82.7%	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	4.238	1.864	.329	.023	-.012	.008	.008	.000
	*****	96.1%	82.8%	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	2.810	1.247	.165	.011	-.006	.004	.004	.000
	*****	96.1%	82.8%	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	1.401	.625	.000	.000	.000	.000	.000	.000
	*****	96.1%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=8

TABLE 11-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	19.3%	859.42%	*****	621.2%	310.5%	41.7%	518.6%	710.5%
SURFACE	.000	1130.109	278.756	93.929	12.727	13.429	8.834	8.133	.000
	*****	97.6%	82.2%	21.6%	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000	1090.256							
	*****	97.7%							
S/DEPTH=1.0	.000	1030.707	283.710						
	*****	97.6%	82.6%						
S/DEPTH=.9	.000	978.161	307.214	95.105	11.719	11.690	7.674	7.093	.000
	*****	97.5%	83.9%	22.9%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	932.216	326.850	96.801	10.618	9.776	6.404	5.946	.000
	*****	97.3%	84.9%	24.5%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	892.513	343.116	98.660	9.8737	8.8224	5.378	5.016	.000
	*****	97.2%	85.7%	25.6%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	858.735	356.431	100.152	9.039	6.977	4.556	4.269	.000
	*****	97.1%	86.2%	27.3%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	830.612	367.144	102.298	8.494	5.991	3.907	3.677	.000
	*****	97.0%	86.8%	28.6%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	807.912	375.540	103.862	8.078	5.228	3.407	3.220	.000
	*****	96.9%	86.9%	29.7%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	790.449	381.844	105.150	7.774	4.662	3.037	2.881	.000
	*****	96.9%	87.2%	30.6%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	778.078	386.227	106.108	7.566	4.272	2.782	2.646	.000
	*****	96.8%	87.3%	31.5%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	770.697	388.810	106.698	7.445	4.044	2.632	2.509	.000
	*****	96.8%	87.4%	31.7%	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	768.243	389.663	106.697	7.406	3.968	2.583	2.464	.000
	*****	96.8%	87.4%	31.8%	*****	*****	*****	*****	*****

TABLE IV. DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD... DEFINED IN EQUATION (24)

32

CASE 1=8

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.938	.413	.049	.039	.062	.061	.061	.062	.062
	46.7%	=19.3%	=859.2%	*****	621.2%	310.5%	=41.7%	=518.6%	=710.5%
SURFACE	2744.612	639.354	15.553	=3.122	=10.372	=10.302	=10.200	=10.470	=10.377
	65.9%	=41.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	2554.316								
	100.0%								
S/DEPTH=1.2	2284.330								
	59.0%								
S/DEPTH=1.1	2035.023								
	57.6%								
S/DEPTH=1.0	1803.278								
	56.6%								
S/DEPTH= .9	1586.427								
	55.6%								
S/DEPTH= .8	1382.162								
	54.6%								
S/DEPTH= .7	1188.472								
	54.0%								
S/DEPTH= .6	1003.585								
	53.3%								
S/DEPTH= .5	825.924								
	52.6%								
S/DEPTH= .4	654.069								
	52.3%								
S/DEPTH= .3	486.724								
	51.9%								
S/DEPTH= .2	322.681								
	51.7%								
S/DEPTH= .1	160.804								
	51.5%								
S/DEPTH= 0	.000								

CASE 1=B

TABLE V1=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)											
THE TA =											
ETA/HEIGHT=											
SURFACE											
S/DEPTH=1.5	.000	1026.951	362.568	100.129	8.749	8.636	4.339	4.060	130.0	180.0	
	*****	97.1%	83.9%	14.6%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=1.2	.000								75.0	100.0	
	*****								75.0	100.0	
S/DEPTH=1.1	.000	959.406							75.0	100.0	
	*****	97.2%							75.0	100.0	
S/DEPTH=1.0	.000	853.418	357.200						75.0	100.0	
	*****	97.1%	86.2%						75.0	100.0	
S/DEPTH=.9	.000	753.031	327.610	92.124	7.821	5.683	3.711	3.484	130.0	180.0	
	*****	97.1%	86.5%	28.6%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.8	.000	657.566	295.886	82.531	6.706	4.613	3.010	2.834	75.0	100.0	
	*****	97.0%	86.7%	29.2%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.7	.000	566.380	262.361	72.758	5.690	3.715	2.422	2.287	75.0	100.0	
	*****	97.0%	86.9%	28.7%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.6	.000	478.866	227.361	62.798	4.753	2.958	1.927	1.824	75.0	100.0	
	*****	96.9%	87.0%	30.2%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.5	.000	394.445	191.162	52.656	3.877	2.311	1.506	1.428	75.0	100.0	
	*****	96.9%	87.2%	30.7%	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.4	.000	312.583	154.009	42.346	3.050	1.752	1.141	1.085	75.0	100.0	
	*****	96.8%	87.3%	*****	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.3	.000	232.688	116.123	31.892	2.258	1.259	.820	.780	75.0	100.0	
	*****	96.8%	87.3%	*****	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.2	.000	154.304	77.704	21.327	1.492	.814	.530	.505	75.0	100.0	
	*****	96.8%	87.4%	*****	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.1	.000	76.906	38.938	10.683	.742	.399	.260	.248	75.0	100.0	
	*****	96.8%	*****	*****	*****	*****	*****	*****	75.0	100.0	
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	75.0	100.0	
	*****	*****	*****	*****	*****	*****	*****	*****	75.0	100.0	

TABLE VII DIMENSIONLESS DRAG MOMENT COMPONENT FIELD... DEFINED IN EQUATION (27)

35

TABLE VII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

36

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

37

CASE 1=B

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.002	.003	.004	.005	.002	.001	.004	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.024	.022	.018	.012	.004	.020	.022	.004	.023
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.005	.001	.001	.002	.000	.000	.001	.001

CASE 1=8

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	
	.128 (12.7%)	
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	
	.145 (-245.7%)	
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	
	.163 (-208.9%)	
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	
	.308 (-226.2%)	
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	
	.303 (-229.3%)	
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	
	.985 (-1.0%)	
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	
	.223 (-209.6%)	
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	
	.428 (-248.7%)	
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	
	.125 (-295.4%)	

CASE 1-B

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.003113	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.016640	STREAM FUNCTION	.001684
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.004955	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023651	STREAM FUNCTION	.004954
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.196021	STREAM FUNCTION	.331913
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.002352	STREAM FUNCTION	.131477

CASE 1=C

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
OPT = WATER DEPTH L. = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

HAVE CHARACTERISTICS

H/LO = .001169 OPT/LO = .002000
H/DPT = .58426
L/LO = .137070 PSI/(G*H*T) = -.000286

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.170855=01	X(2)/(H*T*G) =	-.818334=02
X(3)/(H*T*G) =	-.505625=02	X(4)/(H*T*G) =	-.343514=02
X(5)/(H*T*G) =	-.241829=02	X(6)/(H*T*G) =	-.174028=02
X(7)/(H*T*G) =	-.125519=02	X(8)/(H*T*G) =	-.911680=03
X(9)/(H*T*G) =	-.657157=03	X(10)/(H*T*G) =	-.475132=03
X(11)/(H*T*G) =	-.339469=03	X(12)/(H*T*G) =	-.243229=03
X(13)/(H*T*G) =	-.171508=03	X(14)/(H*T*G) =	-.121568=03
X(15)/(H*T*G) =	-.843649=04	X(16)/(H*T*G) =	-.591503=04
X(17)/(H*T*G) =	-.403566=04	X(18)/(H*T*G) =	-.280536=04
X(19)/(H*T*G) =	-.187999=04		

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

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CASE 1=C

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	951	287	47.4%	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.951	.287	.71.8%	47.4%	.002	***	***	730.9%	367.9%	0.048	0.048	-926.2%
SURFACE	.000	18.170	3.021	.927	.149	***	***	***	***	.126	.115	.000
S/DEPTH=1.5	.000	96.1%	54.6%	***	***	***	***	***	***	***	***	***
S/DEPTH=1.4	.000	***	***	***	***	***	***	***	***	***	***	***
S/DEPTH=1.3	.000	***	***	***	***	***	***	***	***	***	***	***
S/DEPTH=1.2	.000	***	***	***	***	***	***	***	***	***	***	***
S/DEPTH=1.1	.000	16.845	***	***	***	***	***	***	***	***	***	***
S/DEPTH=1.0	.000	14.978	3.019	***	***	***	***	***	***	***	***	***
S/DEPTH= .9	.000	96.4%	64.4%	***	***	***	***	***	***	***	***	***
S/DEPTH= .8	.000	13.211	2.846	***	***	***	***	***	***	***	***	***
S/DEPTH= .7	.000	96.3%	66.1%	***	***	***	***	***	***	***	***	***
S/DEPTH= .6	.000	11.534	2.629	***	***	***	***	***	***	***	***	***
S/DEPTH= .5	.000	96.2%	67.4%	***	***	***	***	***	***	***	***	***
S/DEPTH= .4	.000	9.953	2.375	***	***	***	***	***	***	***	***	***
S/DEPTH= .3	.000	96.2%	68.4%	***	***	***	***	***	***	***	***	***
S/DEPTH= .2	.000	8.397	2.090	***	***	***	***	***	***	***	***	***
S/DEPTH= .1	.000	96.1%	69.2%	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	6.916	1.778	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	96.1%	69.9%	***	***	***	***	***	***	***	***	***
S/DEPTH= .4	.000	5.480	1.447	***	***	***	***	***	***	***	***	***
S/DEPTH= .3	.000	96.0%	70.4%	***	***	***	***	***	***	***	***	***
S/DEPTH= .2	.000	4.079	1.099	***	***	***	***	***	***	***	***	***
S/DEPTH= .1	.000	96.0%	70.7%	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	2.705	.739	***	***	***	***	***	***	***	***	***
S/DEPTH= .1	.000	96.0%	***	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	1.348	.371	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	96.0%	***	***	***	***	***	***	***	***	***	***
S/DEPTH= .0	.000	***	***	***	***	***	***	***	***	***	***	***

TABLE III. DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD, . . . , DEFINED IN EQUATION (23)

44

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

45

TABLE: V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

46

CASE 1=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	47.4%	71.8%	951	987	942	950	948	949	949
	*****	*****	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	1043.479	202.656	64.500	10.428	-13.308	8.811	8.076	.000
	*****	97.3%	72.5%	-27.9%	*****	*****	*****	*****	*****
S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH=.9	.000								

S/DEPTH=.8	.000								

S/DEPTH=.7	.000								

S/DEPTH=.6	.000								

S/DEPTH=.5	.000								

S/DEPTH=.4	.000								

S/DEPTH=.3	.000								

S/DEPTH=.2	.000								

S/DEPTH=.1	.000								

S/DEPTH=.0	.000								

CASE 1=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	10.0 0.287 0.951 47.4%	20.0 0.002 0.002 71.8%	30.0 0.042 0.050 739.9%	50.0 0.048 0.050 367.9%	75.0 0.048 0.048 -81.4%	100.0 0.049 0.049 -926.2%	130.0 0.049 0.049 -926.2%	160.0 0.049 0.049 -926.2%
SURFACE	2570.152	203.055	405	2.114	3.307	2.894	2.811	3.043
S/DEPTH=1.5	74.4%	212.0%	405	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=1.4	2305.308	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.3	1891.915	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.2	1544.219	57.4%	57.4%	57.4%	57.4%	57.4%	57.4%	57.4%
S/DEPTH=1.1	1251.360	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%	54.7%
S/DEPTH=1.0	1004.542	52.7%	52.7%	52.7%	52.7%	52.7%	52.7%	52.7%
S/DEPTH=0.9	796.633	50.8%	50.8%	50.8%	50.8%	50.8%	50.8%	50.8%
S/DEPTH=0.8	621.846	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
S/DEPTH=0.7	475.464	47.3%	47.3%	47.3%	47.3%	47.3%	47.3%	47.3%
S/DEPTH=0.6	353.743	45.8%	45.8%	45.8%	45.8%	45.8%	45.8%	45.8%
S/DEPTH=0.5	253.552	44.5%	44.5%	44.5%	44.5%	44.5%	44.5%	44.5%
S/DEPTH=0.4	172.459	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%	43.4%
S/DEPTH=0.3	108.524	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%
S/DEPTH=0.2	60.251	40.5%	40.5%	40.5%	40.5%	40.5%	40.5%	40.5%
S/DEPTH=0.1	26.530	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%	39.0%
S/DEPTH=0.0	6.596	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%

CASE 1=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.951	.987	.002	-.042	-.050	-.048	-.048	-.049	-.049
	47.4%	-71.8%	*****	*****	739.9%	367.9%	-81.4%	-681.4%	-926.26
SURFACE	.000	648.626	88.792	32.595	5.838	-7.722	5.136	4.676	.000
S/DEPTH=1.5	.000	97.2%	59.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	.000	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	.000	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	.000	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	.000	563.611	88.682	27.193	4.713	-6.116	4.056	3.711	.000
S/DEPTH=1.0	.000	452.138	75.3%	*****	*****	*****	*****	*****	*****
S/DEPTH= .9	.000	356.356	78.020	*****	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	274.668	65.861	21.017	3.025	-4.349	2.876	2.642	.000
S/DEPTH= .7	.000	203.685	53.178	15.816	2.430	-3.020	1.992	1.836	.000
S/DEPTH= .6	.000	148.211	40.771	11.468	1.667	-2.031	1.336	1.236	.000
S/DEPTH= .5	.000	101.282	29.288	7.886	1.091	-1.304	.856	.795	.000
S/DEPTH= .4	.000	63.909	19.244	5.011	.664	-.781	.511	.476	.000
S/DEPTH= .3	.000	35.566	11.039	2.804	.359	-.416	.272	.254	.000
S/DEPTH= .2	.000	15.686	4.974	1.242	.155	-.178	.116	.109	.000
S/DEPTH= .1	.000	3.904	1.253	.310	.038	-.043	.028	.027	.000
S/DEPTH= .0	.000	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=C

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

DEPTH	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.951	.267	.002	.842	.050	.048	.049	.049
	47.4%	-71.8%	*****	*****	739.9%	367.9%	-681.4%	-926.2%
SURFACE	1.883	.602	.002	-.090	-.110	.097	-.094	-.101
S/DEPTH=1.5	50.7%	-52.6%	*****	*****	697.6%	430.6%	-13.5%	-667.6%
S/DEPTH=1.4	100.0%							
S/DEPTH=1.3	100.0%							
S/DEPTH=1.2	45.9%							
S/DEPTH=1.1	44.1%							
S/DEPTH=1.0	40.7%							
S/DEPTH=.9	39.1%							
S/DEPTH=.8	37.7%							
S/DEPTH=.7	36.4%							
S/DEPTH=.6	35.2%							
S/DEPTH=.5	34.2%							
S/DEPTH=.4	33.5%							
S/DEPTH=.3	32.6%							
S/DEPTH=.2	32.1%							
S/DEPTH=.1	31.8%							
S/DEPTH=.0	31.7%							

CASE 1=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.005	.009	.011	.012	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.036	.033	.027	.018	.006	.030	.033	.066	.035
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.010	.014	.001	.003	.005	.000	.001	.002	.002

CASE 1=C

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.137 (= 18.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.113 (=341.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.136 (=270.7%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.249 (=302.9%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.247 (=303.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.993 (= 99.1%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.268 (=273.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.344 (=334.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.096 (=413.8%)

CASE 1=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.007273	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024969	STREAM FUNCTION	.004690
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.012231	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.035580	STREAM FUNCTION	.015717
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.294402	STREAM FUNCTION	.481962
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.003352	STREAM FUNCTION	.209473

CASE 1=0

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g) \cdot 2\pi \cdot T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001564 DPT/LO = .002000

H/DPT = .782113

L/LO = .146465 PSI/(G*H*T) = .000312

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .0151873=01 X(2)/(H*T*G) = .734411=02

X(3)/(H*T*G) = .0460053=02 X(4)/(H*T*G) = .318689=02

X(5)/(H*T*G) = .029251=02 X(6)/(H*T*G) = .169482=02

X(7)/(H*T*G) = .0125585=02 X(8)/(H*T*G) = .940877=03

X(9)/(H*T*G) = .098760=03 X(10)/(H*T*G) = .52365=03

X(11)/(H*T*G) = .384721=03 X(12)/(H*T*G) = .285146=03

X(13)/(H*T*G) = .207334=03 X(14)/(H*T*G) = .152059=03

X(15)/(H*T*G) = .108782=03 X(16)/(H*T*G) = .788972=04

X(17)/(H*T*G) = .553676=04 X(18)/(H*T*G) = .397431=04

X(19)/(H*T*G) = .273118=04

CASE 1=0

TABLE 1=0 DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	57.938	12.194	-.931	-2.136	-2.393	-2.019	-1.955	-2.149	-2.141
S/DEPTH=1.7	51.3%	128.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	100.0%								
S/DEPTH=1.5	55.013								
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	50.166								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	47.628								
S/DEPTH=1.0	40.7%								
S/DEPTH=.9	45.368								
S/DEPTH=.8	37.9%								
S/DEPTH=.7	43.362								
S/DEPTH=.6	35.1%								
S/DEPTH=.5	41.586								
S/DEPTH=.4	32.4%								
S/DEPTH=.3	40.022								
S/DEPTH=.2	29.9%								
S/DEPTH=.1	38.652								
S/DEPTH=.0	27.5%	13.419	.718	-2.093	-2.360	-2.026	-1.967	-2.142	-2.129
S/DEPTH=.9	37.463	105.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	25.42%	13.755	.498	-2.038	-2.318	-2.034	-1.982	-2.133	-2.114
S/DEPTH=.7	36.440	100.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	35.574	14.035	.299	-1.992	-2.284	-2.041	-1.994	-2.125	-2.101
S/DEPTH=.5	21.4%	96.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	34.856	14.264	.124	-1.953	-2.256	-2.047	-2.004	-2.119	-2.091
S/DEPTH=.3	19.8%	93.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	34.277	14.450	.025	-1.921	-2.233	-2.051	-2.012	-2.114	-2.083
S/DEPTH=.1	18.1%	90.4%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	33.834	14.595	.149	-1.895	-2.216	-2.055	-2.019	-2.110	-2.077
S/DEPTH=.9	17.5%	88.4%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	33.520	14.705	.246	-1.875	-2.203	-2.057	-2.024	-2.107	-2.072
S/DEPTH=.7	16.8%	86.9%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	33.333	14.781	.315	-1.861	-2.194	-2.059	-2.027	-2.105	-2.069
S/DEPTH=.5	16.3%	85.9%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	33.271	14.827	.357	-1.853	-2.188	-2.060	-2.029	-2.104	-2.067
S/DEPTH=.3	16.2%	85.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	33.271	14.841	.371	-1.850	-2.186	-2.060	-2.030	-2.104	-2.067
S/DEPTH=.1	16.2%	85.1%	*****	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.003	.040	.040	.041	.041
	47.0%	134.0%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	16.438	1.520	.737	.168	.232	.154	.141	.000
*****	95.4%	3.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								
*****	*****								
S/DEPTH=1.6	.000								
*****	*****								
S/DEPTH=1.5	.000								
*****	*****								
S/DEPTH=1.4	.000								
*****	*****								
S/DEPTH=1.3	.000								
*****	*****								
S/DEPTH=1.2	.000								
*****	*****								
S/DEPTH=1.1	.000	15.310							
*****	96.1%								
S/DEPTH=1.0	.000	13.632							
*****	96.0%								
S/DEPTH=.9	.000	12.040	1.496	.666	.150	.205	.135	.125	.000
*****	95.8%		35.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	10.523	1.429	.573	.126	.170	.112	.103	.000
*****	95.6%		39.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	9.071	1.325	.487	.105	.139	.092	.085	.000
*****	95.5%		43.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	7.675	1.190	.407	.086	.113	.074	.069	.000
*****	95.7%		45.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	6.326	1.029	.333	.069	.090	.059	.055	.000
*****	95.7%		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	5.016	.847	.262	.053	.069	.045	.042	.000
*****	95.7%		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	3.735	.649	.194	.039	.050	.033	.031	.000
*****	95.6%		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	2.478	.439	.128	.025	.033	.021	.020	.000
*****	95.6%		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	1.235	.222	.064	.013	.016	.010	.010	.000
*****	95.6%		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1-D

TABLE 111-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.039	.043	.040	.040	.040	.041	.041
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	.000	1066.430	1.370	78.561	21.197	-31.411	21.136	19.014	.001
	*****	98.2%	*****	24.9%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								
S/DEPTH=1.6	.000								
S/DEPTH=1.5	.000								
S/DEPTH=1.4	.000								
S/DEPTH=1.3	.000								
S/DEPTH=1.2	.000								
S/DEPTH=1.1	.000	1032.223							
	*****	98.2%							
S/DEPTH=1.0	.000	983.334							
	*****	98.1%							
S/DEPTH=.9	.000	939.682	31.900	73.151	19.406	-26.294	18.970	17.155	.001
	*****	98.0%	*****	20.8%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	901.117	61.558	66.042	17.061	-24.386	16.278	14.800	.001
	*****	97.9%	*****	12.4%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	867.094	86.672	61.026	15.099	-21.159	14.062	12.055	.001
	*****	97.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	836.669	107.656	57.393	13.478	-18.523	12.256	11.267	.001
	*****	97.8%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	814.515	124.856	54.071	12.162	-16.405	10.809	9.991	.000
	*****	97.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	794.915	138.556	51.618	11.123	-14.747	9.678	8.992	.000
	*****	97.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	779.775	148.084	49.822	10.337	-13.503	8.831	8.242	.000
	*****	97.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	769.016	156.311	48.599	9.789	-12.638	8.243	7.721	.000
	*****	97.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	762.584	160.659	47.898	9.464	-12.129	7.896	7.414	.000
	*****	97.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	760.443	162.101	47.655	9.357	-11.961	7.782	7.312	.000
	*****	97.5%	*****	*****	*****	*****	*****	*****	*****

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 1=0

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	2985.630	230.375	.157	-3.661	-4.693	-4.061	-3.901	-4.339	-4.225
	63.4%	358.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.7	2622.638								
	100.0%								
S/DEPTH=1.6	2624.681								
	100.0%								
S/DEPTH=1.5	2258.741								
	100.0%								
S/DEPTH=1.4	2019.834								
	45.9%								
S/DEPTH=1.3	1803.792								
	43.4%								
S/DEPTH=1.2	1607.114								
	41.4%								
S/DEPTH=1.1	1426.842								
	39.6%								
S/DEPTH=1.0	1260.462								
	37.9%								
S/DEPTH=.9	1105.828								
	36.3%								
S/DEPTH=.8	961.089								
	34.9%								
S/DEPTH=.7	824.640								
	33.7%								
S/DEPTH=.6	696.076								
	32.6%								
S/DEPTH=.5	571.148								
	31.7%								
S/DEPTH=.4	451.740								
	30.9%								
S/DEPTH=.3	335.836								
	30.3%								
S/DEPTH=.2	222.494								
	29.9%								
S/DEPTH=.1	110.832								

S/DEPTH=.0	.000								

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.959	.959	.959	.959	.959	.959	.959	.959	.959
	47.6%	134.6%	210	301.4	303.9	304.3	304.0	304.1	304.1
SURFACE	.000	1001.659	110.000	54.979	12.614	17.364	11.496	10.552	.001
S/DEPTH=1.7	*****	97.4%	52.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****	.000							
S/DEPTH=1.5	*****	.000							
S/DEPTH=1.4	*****	.000							
S/DEPTH=1.3	*****	.000							
S/DEPTH=1.2	*****	.000							
S/DEPTH=1.1	*****	.000							
S/DEPTH=1.0	*****	934.314							
	*****	97.8%							
	*****	833.580							
	*****	97.7%							
S/DEPTH=.9	*****	737.472	108.492	49.716	11.268	15.326	10.118	9.330	.000
S/DEPTH=.8	*****	97.7%	66.4%	*****	*****	*****	*****	*****	*****
	*****	645.474	103.780	42.738	9.448	12.698	8.360	7.736	.000
S/DEPTH=.7	*****	97.7%	70.6%	*****	*****	*****	*****	*****	*****
	*****	557.084	96.332	36.395	7.843	10.426	6.847	6.356	.000
S/DEPTH=.6	*****	97.6%	72.3%	*****	*****	*****	*****	*****	*****
	*****	471.816	66.583	30.417	6.417	8.447	5.534	5.153	.000
S/DEPTH=.5	*****	97.6%	73.6%	*****	*****	*****	*****	*****	*****
	*****	389.195	74.927	24.856	5.137	6.704	4.384	4.092	.000
S/DEPTH=.4	*****	97.6%	74.6%	*****	*****	*****	*****	*****	*****
	*****	308.761	61.728	19.577	3.975	5.150	3.362	3.146	.000
S/DEPTH=.3	*****	97.6%	75.4%	*****	*****	*****	*****	*****	*****
	*****	230.063	47.325	10.510	2.904	3.741	2.439	2.286	.000
S/DEPTH=.2	*****	97.6%	76.2%	*****	*****	*****	*****	*****	*****
	*****	152.660	32.035	9.593	1.900	2.437	1.587	1.490	.000
S/DEPTH=.1	*****	97.5%	76.116	*****	*****	*****	*****	*****	*****
	*****	76.116	16.182	4.773	.939	1.202	.782	.735	.000
S/DEPTH=.0	*****	97.5%	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=D

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

ETA	0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	47.9%	.959	.210	.039	.043	.040	.041	.041
	-134.6%	*****	*****	*****	*****	*****	*****	*****
SURFACE	312.254	126.251	.111	-1.861	-2.434	-1.954	-2.114	-2.068
S/DEPTH=1.7	75.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	2841.047	10.0	20.0	30.0	50.0	75.0	100.0	180.0
S/DEPTH=1.5	100.0%	.014	.039	.043	.040	.040	.041	.041
S/DEPTH=1.4	2349.128	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	1936.677	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	1590.054	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	52.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	1298.223	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	48.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	1052.227	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	46.2%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	844.788	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	43.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	669.983	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	41.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	115.130	81.361	.053	-1.570	-2.084	-1.692	-1.823	-1.779
S/DEPTH=.8	522.991	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	39.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	390.887	65.664	.022	-1.208	-1.619	-1.342	-1.435	-1.396
S/DEPTH=.5	37.4%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	297.488	51.180	.009	.903	-1.222	-1.031	-1.095	-1.063
S/DEPTH=.3	35.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	213.219	38.164	.006	.651	.687	.759	.802	.778
S/DEPTH=.1	34.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	145.017	26.826	.006	.444	.610	.528	.556	.538
S/DEPTH=.8	91.250	17.334	.006	.280	.388	.339	.355	.343
S/DEPTH=.7	50.658	9.822	.004	.156	.217	.191	.199	.193
S/DEPTH=.6	22.305	4.388	.002	.069	.096	.085	.089	.085
S/DEPTH=.5	5.545	1.100	.001	.017	.024	.021	.022	.021
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****

CASE 1=0

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THE TA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.959	.210	.014	.039	.043	.040	.040	.041	.041
	47.9%	134.6%							
SURFACE	.000	617.287	41.627	28.920	6.986	9.866	6.568	5.981	.000
S/DEPTH=1.7	*****	97.1%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****								
S/DEPTH=1.5	*****								
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****	541.034							
S/DEPTH=1.0	*****	97.9%	435.223						
S/DEPTH=.9	*****	97.8%	343.884	23.999	5.730	7.960	5.280	4.839	.000
S/DEPTH=.8	*****	97.8%	265.653	18.062	4.181	5.723	3.784	3.482	.000
S/DEPTH=.7	*****	97.7%	199.333	13.263	2.975	4.017	2.647	2.446	.000
S/DEPTH=.6	*****	97.7%	143.884	9.406	2.047	2.728	1.792	1.663	.000
S/DEPTH=.5	*****	97.6%	98.423	6.345	1.342	1.768	1.158	1.078	.000
S/DEPTH=.4	*****	62.211	12.033	3.968	.818	1.067	.697	.651	.000
S/DEPTH=.3	*****	97.6%	34.654	2.193	.443	.573	.374	.350	.000
S/DEPTH=.2	*****	15.295	3.184	.962	.191	.246	.160	.150	.000
S/DEPTH=.1	*****	3.808	.807	.239	.047	.060	.039	.037	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.010	.018	.023	.023	.010	.006	.013	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.048	.045	.037	.024	.008	.041	.045	.008	.047
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.020	.028	.002	.005	.007	.001	.000	.003	.003

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	
	.146 (23.6%)	
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	
	.093 (=436.0%)	
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	
	.119 (=322.0%)	
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	
	.213 (=372.0%)	
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	
	.215 (=363.6%)	
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	
	1.012 (1.6%)	
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	
	.234 (=327.0%)	
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	
	.297 (=402.9%)	
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	
	.082 (=506.5%)	

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TABLE XI(CONT.)=OVERALL WAVE PARAMETERS,.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013785	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.033447	STREAM FUNCTION	.009530
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.024341	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047779	STREAM FUNCTION	.036365
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.394640	STREAM FUNCTION	.618771
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.004152	STREAM FUNCTION	.247901

CASE 2**A

17TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28318) \cdot T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .000974 DPT/LO = .005000

H/DPT = .194887

L/LO = .186504 PSI/(G**T) = *.000405

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	*.424866=01	X(2)/(H*T*G) =	*.161735=01
X(3)/(H*T*G) =	*.715367=02	X(4)/(H*T*G) =	*.322226=02
X(5)/(H*T*G) =	*.144162=02	X(6)/(H*T*G) =	*.616055=03
X(7)/(H*T*G) =	*.276349=03	X(8)/(H*T*G) =	*.117942=03
X(9)/(H*T*G) =	*.495603=04	X(10)/(H*T*G) =	*.202045=04
X(11)/(H*T*G) =	*.805877=05	X(12)/(H*T*G) =	*.311340=05
X(13)/(H*T*G) =	*.115516=05	X(14)/(H*T*G) =	*.404538=06
X(15)/(H*T*G) =	*.129699=06	X(16)/(H*T*G) =	*.357995=07
X(17)/(H*T*G) =	*.617704=08		

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TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA = ETA/HEIGHT	10.0 30.0	20.0 10.9	30.0 14.2	50.0 63.7	100.0 200.1	130.0 168.6	180.0 250.4
0.0 41.7	0.0 41.7	0.0 41.7	0.0 41.7	0.0 41.7	0.0 41.7	0.0 41.7	0.0 41.7
SURFACE	31.250 42.8	25.718 31.8	14.880 12.8	5.986 158.4	-2.205 620.3	4.683 175.1	-4.953 -258.5
S/DEPTH=1.1	30.642 41.7	25.518 31.0	14.935 12.1	6.080 153.7	202.3 4.491	4.948 174.9	-4.953 -258.5
S/DEPTH=1.0	29.823 40.3	25.040 30.0	14.988 11.3	6.329 143.0	202.6 4.469	4.948 174.2	-4.953 -257.5
S/DEPTH=.9	29.101 39.0	24.613 29.0	14.988 11.3	6.329 143.0	202.6 4.469	4.948 174.2	-4.953 -257.5
S/DEPTH=.8	28.471 37.8	24.235 28.0	15.028 10.7	6.545 134.3	202.6 4.448	4.948 173.5	-4.953 -256.7
S/DEPTH=.7	27.927 36.7	23.906 27.2	15.058 10.3	6.732 127.3	202.8 4.431	4.948 173.0	-4.953 -256.0
S/DEPTH=.6	27.464 35.8	23.623 26.5	15.079 9.9	6.891 121.6	203.0 4.415	4.948 172.5	-4.953 -255.4
S/DEPTH=.5	27.078 35.0	23.386 25.9	15.094 9.6	7.022 117.1	203.2 4.403	4.948 172.1	-4.953 -254.8
S/DEPTH=.4	26.767 34.3	23.193 25.4	15.105 9.3	7.128 115.5	203.3 4.393	4.948 171.8	-4.953 -254.5
S/DEPTH=.3	26.528 33.8	23.044 25.0	15.111 9.2	7.210 110.9	203.4 4.386	4.947 171.6	-4.953 -254.2
S/DEPTH=.2	26.358 33.4	22.938 24.7	15.116 9.1	7.267 109.0	203.5 4.382	4.947 171.5	-4.953 -254.0
S/DEPTH=.1	26.257 33.2	22.874 24.5	15.118 9.0	7.302 108.0	203.6 4.381	4.947 171.4	-4.953 -254.0
S/DEPTH=.0	26.223 33.1	22.853 24.5	15.119 9.0	7.313 107.6	203.6 4.381	4.947 171.4	-4.953 -254.0

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)												
THETA	ETA/HEIGHT	0	.857	.713	.424	20.0	30.0	50.0	75.0	100.0	130.0	180.0
		41.7%		30.9%		10.9%	-144.2%	635.7%	200.1%	38.5%	168.6%	250.4%
SURFACE		.000	.000	8.027	9.528	6.941	2.142	.365	.058	.003	.000	.000
S/DEPTH=1.1		*****	*****	92.6%	87.7%	75.5%	19.4%	*****	*****	*****	*****	*****
S/DEPTH=1.0		*****	*****	92.2%	87.7%	76.6%	1.969	.341	.054	.003	.000	.000
S/DEPTH=.9		*****	*****	92.0%	87.7%	76.5%	1.767	.507	.049	.002	.000	.000
S/DEPTH=.8		*****	*****	91.8%	87.5%	76.5%	1.534	.272	.044	.002	.000	.000
S/DEPTH=.7		*****	*****	91.7%	87.4%	76.5%	1.560	.236	.038	.002	.000	.000
S/DEPTH=.6		*****	*****	91.5%	87.2%	76.5%	1.346	.198	.032	.002	.000	.000
S/DEPTH=.5		*****	*****	91.4%	87.1%	76.4%	1.129	.160	.026	.001	.000	.000
S/DEPTH=.4		*****	*****	91.3%	87.0%	76.4%	.907	.120	.019	.001	.000	.000
S/DEPTH=.3		*****	*****	91.2%	87.0%	76.4%	.683	.081	.013	.001	.000	.000
S/DEPTH=.2		*****	*****	91.1%	86.9%	76.3%	.457	.040	.006	.000	.000	.000
S/DEPTH=.1		*****	*****	91.1%	86.8%	76.3%	.229	.000	.000	.000	.000	.000
S/DEPTH=.0		*****	*****	91.1%	86.8%	76.3%	.000	.000	.000	.000	.000	.000
		*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD, . . . DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 .857 41.7%	10.0 30.9%	20.0 42.4 10.9%	30.0 .177 14.2%	50.0 30.60 63.7%	75.0 100.0 200.1%	100.0 130.0 38.5%	130.0 168.6%	180.0 250.4%
SURFACE	.000	305.238	350.790	245.559	71.893	12.026	1.916	.097	.000
S/DEPTH=1.1	*****	94.2%	90.0%	79.0%	12.2%	*****	*****	*****	*****
S/DEPTH=1.0	*****	297.191							
	*****	94.1%							
S/DEPTH=.9	*****	278.370	339.862	245.204	74.358	12.513	1.994	.101	.000
	*****	93.7%	89.7%	79.1%	77.9%	*****	*****	*****	*****
S/DEPTH=.8	*****	262.019	327.895	248.072	76.850	13.109	2.092	.106	.000
	*****	93.3%	89.4%	79.0%	74.1%	*****	*****	*****	*****
S/DEPTH=.7	*****	247.917	317.293	242.852	79.031	13.640	2.181	.111	.000
	*****	92.9%	89.1%	79.0%	79.031	*****	*****	*****	*****
S/DEPTH=.6	*****	235.875	308.025	241.618	80.907	14.105	2.259	.115	.000
	*****	92.6%	88.8%	78.9%	80.907	*****	*****	*****	*****
S/DEPTH=.5	*****	225.735	300.063	240.434	82.444	14.502	2.325	.118	.000
	*****	92.3%	88.5%	78.9%	82.444	*****	*****	*****	*****
S/DEPTH=.4	*****	217.365	293.377	239.352	83.766	14.828	2.380	.121	.000
	*****	92.0%	88.3%	78.8%	83.766	*****	*****	*****	*****
S/DEPTH=.3	*****	210.657	287.943	238.413	84.759	15.084	2.423	.123	.000
	*****	91.8%	88.1%	78.8%	84.759	*****	*****	*****	*****
S/DEPTH=.2	*****	203.526	283.739	237.650	85.465	15.267	2.454	.125	.000
	*****	91.6%	87.9%	78.7%	85.465	*****	*****	*****	*****
S/DEPTH=.1	*****	201.896	280.749	237.088	85.888	15.377	2.472	.126	.000
	*****	91.4%	87.8%	78.7%	85.888	*****	*****	*****	*****
S/DEPTH=.0	*****	199.752	278.960	236.744	86.029	15.414	2.479	.126	.000
	*****	91.3%	87.7%	78.7%	86.029	*****	*****	*****	*****
	*****	199.037	278.365	236.628	8.0%				
	*****	91.3%	87.7%	78.7%					

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	41.7%	30.9%	20.9%	14.42%	10.9%	7.77%	5.060	3.129	1.686%	0.143
SURFACE	294.324	155.209	44.915	109.475	52.427	9.777	1.590	.070	.027	
	93.4%	67.6%	140.3%	115.0%	121.8%	*****	*****	*****	*****	
S/DEPTH=1.1	272.766	149.671								
	92.8%	87.2%								
S/DEPTH=1.0	242.247	135.061								
	92.7%	87.1%								
S/DEPTH=.9	213.458	121.368	37.642	104.785	47.959	9.126	1.488	.065	.025	
	92.5%	87.0%	144.1%	114.4%	120.1%	*****	*****	*****	*****	
S/DEPTH=.8	186.177	107.419	149.4%	114.6%	120.1%	8.219	1.342	.059	.022	
	92.4%	87.0%	155.3%	115.2%	120.0%	*****	*****	*****	*****	
S/DEPTH=.7	160.199	93.591	168.74	115.5%	120.0%	7.275	1.189	.053	.019	
	92.2%	86.9%	161.4%	115.5%	120.0%	*****	*****	*****	*****	
S/DEPTH=.6	135.533	79.904	14.646	57.289	32.831	6.297	1.030	.046	.016	
	92.1%	86.9%	*****	115.8%	119.9%	*****	*****	*****	*****	
S/DEPTH=.5	111.199	66.353	11.151	46.952	27.010	5.292	.866	.039	.013	
	92.0%	86.9%	*****	116.1%	119.8%	*****	*****	*****	*****	
S/DEPTH=.4	88.226	52.924	8.244	37.447	21.651	4.262	.698	.031	.011	
	92.0%	86.8%	*****	116.3%	119.8%	*****	*****	*****	*****	
S/DEPTH=.3	65.653	39.598	5.795	27.486	16.262	3.215	.527	.024	.008	
	91.9%	86.8%	*****	116.5%	119.8%	*****	*****	*****	*****	
S/DEPTH=.2	43.525	26.353	3.681	18.182	10.853	2.150	.353	.016	.005	
	91.9%	86.8%	*****	116.5%	*****	*****	*****	*****	*****	
S/DEPTH=.1	21.689	13.162	1.786	9.448	5.430	1.077	.177	.008	.003	
	91.8%	*****	*****	*****	*****	*****	*****	*****	*****	
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	*****	*****	*****	*****	*****	*****	*****	*****	*****	

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD.....DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.857	.713	.624	.517	.400	.289	.181	.143	.143
	41.7%	30.9%	-10.9%	-14.4,2%	635.7%	200.1%	38.3%	168.6%	-250.4%
SURFACE	906.960	645.488	245.541	49.199	-3.067	19.083	-23.059	23.800	-23.850
S/DEPTH=.10	62.3%	48.7%	22.4%	415.3%	*****	*****	*****	*****	*****
	842.737	619.947							
S/DEPTH=.10	59.4%	46.5%		47.941					
	556.066		227.196	386.8%					
S/DEPTH=.09	58.6%	45.7%	20.5%	44.088	-2.660	17.507	21.310	22.032	22.079
	664.626	494.451	204.806	39.941	*****	*****	*****	*****	*****
S/DEPTH=.08	57.9%	45.2%	182.278	*****	-2.248	15.561	10.950	19.583	19.626
	581.803	434.816	20.1%	35.530	*****	*****	*****	*****	*****
S/DEPTH=.07	57.4%	44.7%	159.646	35.530	-1.880	13.573	16.573	17.135	17.172
	502.323	376.895	19.8%	30.888	*****	*****	*****	*****	*****
S/DEPTH=.06	56.9%	44.1%	136.939	30.888	-1.549	11.602	14.200	14.687	14.719
	425.656	320.437	19.6%	26.045	*****	*****	*****	*****	*****
S/DEPTH=.05	56.4%	43.9%	114.177	26.045	-1.249	9.646	11.829	12.239	12.266
	351.318	265.208	19.4%	21.036	*****	*****	*****	*****	*****
S/DEPTH=.04	56.1%	43.6%	91.377	21.036	-.972	7.702	9.461	9.791	9.813
	278.868	210.985	19.2%	15.694	*****	*****	*****	*****	*****
S/DEPTH=.03	55.8%	43.3%	68.551	15.694	-.713	5.768	7.094	7.343	7.359
	207.891	157.554	19.1%	10.652	*****	*****	*****	*****	*****
S/DEPTH=.02	55.5%	43.1%	45.709	10.652	-.468	3.841	4.729	4.895	4.906
	138.000	104.713	19.0%	5.343	*****	*****	*****	*****	*****
S/DEPTH=.01	55.4%	42.9%	22.857	5.343	-.232	1.919	2.364	2.448	2.453
	68.823	52.260	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	55.3%	42.9%	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VII—DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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CASE 2=A

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .857 41.7%	10.0 .713 30.9%	20.0 .424 10.9%	30.0 .177 14.42%	50.0 0.060 63.57%	75.0 0.129 200.1%	100.0 0.141 38.3%	130.0 0.143 168.6%	180.0 0.143 250.4%
SURFACE	.000 *****	162.006 93.5%	184.076 88.8%	129.347 76.8%	38.593 17.0%	6.510 *****	1.037 *****	.053 *****	.000 *****
S/DEPTH=1.1	.000 *****	148.683 92.9%	154.399 88.6%	120.721 78.9%	32.496 16%	5.650 *****	.904 *****	.046 *****	.000 *****
S/DEPTH=1.0	.000 *****	118.673 92.6%	122.682 97.478	97.478 78.9%	26.070 2.3%	4.561 *****	.731 *****	.037 *****	.000 *****
S/DEPTH=.9	.000 *****	93.009 92.4%	88.6%	78.9%	20.224 3.7%	3.558 *****	.571 *****	.029 *****	.000 *****
S/DEPTH=.8	.000 *****	71.340 92.2%	95.262 88.4%	76.783 78.8%	15.026 4.6%	2.656 *****	.426 *****	.022 *****	.000 *****
S/DEPTH=.7	.000 *****	53.200 92.0%	71.813 88.3%	58.614 78.8%	10.533 5.8%	1.870 *****	.300 *****	.015 *****	.000 *****
S/DEPTH=.6	.000 *****	38.200 91.8%	52.051 88.1%	42.947 78.8%	5.8%	*****	*****	*****	*****
S/DEPTH=.5	.000 *****	26.015 91.7%	35.731 88.0%	29.753 78.7%	19.003 6.792	1.210 *****	.194 *****	.010 *****	.000 *****
S/DEPTH=.4	.000 *****	16.385 91.5%	22.652 87.9%	19.003 78.7%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000 *****	9.102 *****	12.647 87.8%	10.671 78.7%	3.843 *****	.686 *****	.110 *****	.006 *****	.000 *****
S/DEPTH=.2	.000 *****	4.009 *****	5.591 *****	4.737 *****	1.715 *****	.307 *****	.049 *****	.003 *****	.000 *****
S/DEPTH=.1	.000 *****	.997 *****	1.393 *****	1.183 *****	.430 *****	.077 *****	.012 *****	.001 *****	.000 *****
S/DEPTH=.0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	10.0 .857 41.7%	20.0 .424 10.9%	30.0 .177 144.42%	50.0 -0.060 635.7%	75.0 -0.129 200.1%	100.0 -0.141 38.3%	130.0 -0.163 168.6%	180.0 -0.183 250.4%
SURFACE	1.716	.847	.355	.0120	.259	.281	.285	.286
S/DEPTH=1.1	43.0%	32.4%	141.0%	638.3%	207.5%	45.7%	169.8%	257.9%
S/DEPTH=1.0	42.0%	32.0%						
S/DEPTH=.9	40.7%	31.1%	.361					
S/DEPTH=.8	39.6%	30.3%	.376	.0113	.258	.281	.285	.286
S/DEPTH=.7	38.5%	29.5%	.362	.0106	.256	.281	.285	.286
S/DEPTH=.6	37.6%	28.8%	.402	.0099	.255	.281	.285	.286
S/DEPTH=.5	36.7%	28.2%	.411	.0094	.254	.281	.285	.286
S/DEPTH=.4	35.4%	27.2%	.426	.0089	.253	.280	.285	.286
S/DEPTH=.3	34.9%	26.9%	.432	.0082	.252	.280	.285	.286
S/DEPTH=.2	34.6%	26.7%	.435	.0080	.251	.280	.285	.286
S/DEPTH=.1	34.4%	26.5%	.437	.0079	.251	.280	.285	.286
S/DEPTH=.0	34.462	26.5%	.438	.0078	.251	.280	.285	.286
	34.5%	26.5%	.437	.0077	.250	.280	.285	.286

CASE 2-A

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.001	.002	.002	.001	.001	.002	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.011	.011	.009	.006	.002	.010	.011	.002	.011
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.187 (5.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.294 (66.8%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.311 (62.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.605 (65.8%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.591 (67.6%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.977 (1.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.618 (61.9%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.859 (72.4%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.268 (62.8%)

CASE 2=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001216	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007888	STREAM FUNCTION	.000161
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001826	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011230	STREAM FUNCTION	.000681
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.098698	STREAM FUNCTION	.163273
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.003029	STREAM FUNCTION	.045645

CASE 2=B

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001946 DPT/LO = .005000

M/DPT = .389164

L/LO = .199023 PSI/(G*H*T) = -.000574

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.308370-01	X(2)/(H*T*G) =	-.132363-01
X(3)/(H*T*G) =	-.693747-02	X(4)/(H*T*G) =	-.380673-02
X(5)/(H*T*G) =	-.209993-02	X(6)/(H*T*G) =	-.115105-02
X(7)/(H*T*G) =	-.623967-03	X(8)/(H*T*G) =	-.333323-03
X(9)/(H*T*G) =	-.175877-03	X(10)/(H*T*G) =	-.907759-04
X(11)/(H*T*G) =	-.460921-04	X(12)/(H*T*G) =	-.228248-04
X(13)/(H*T*G) =	-.110152-04	X(14)/(H*T*G) =	-.513379-05
X(15)/(H*T*G) =	-.228778-05	X(16)/(H*T*G) =	-.952306-06
X(17)/(H*T*G) =	-.353260-06	X(18)/(H*T*G) =	-.988441-07
X(19)/(H*T*G) =	-.155364-08		

CASE 2-B

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	44.7%	9.04	6.66	2.28	.031	.079	.096	.096	.096
		18.8%	106.3%	*****	506.8%	230.5%	9.5%	298.6%	420.5%
SURFACE	34.035	22.086	7.678	.847	22.697	23.183	23.220	23.224	23.222
S/DEPTH=1.3	47.3%	20.1%	119.3%	*****	526.3%	245.0%	4.0%	321.3%	449.8%
	33.154								
	100.0%								
S/DEPTH=1.2	31.611	21.917							
	43.3%	19.4%							
S/DEPTH=1.1	30.258	21.473							
	40.9%	18.0%							
S/DEPTH=1.0	29.075	21.065	8.025	.888					
	30.7%	16.7%	108.5%	*****					
S/DEPTH= .9	28.047	20.696	8.360	1.198	22.658	23.180	23.219	23.224	23.222
	36.7%	15.5%	99.6%	*****	529.5%	244.5%	4.2%	321.3%	449.7%
S/DEPTH= .8	27.156	20.366	8.643	1.473	22.603	23.176	23.219	23.224	23.222
	34.8%	14.4%	92.5%	*****	536.9%	246.3%	4.5%	320.7%	449.7%
S/DEPTH= .7	26.399	20.075	8.879	1.713	22.558	23.172	23.219	23.224	23.222
	33.1%	13.3%	87.0%	793.1%	543.9%	244.2%	4.7%	319.7%	448.4%
S/DEPTH= .6	25.758	19.823	9.075	1.920	22.517	23.169	23.219	23.224	23.222
	31.6%	12.4%	82.6%	695.2%	550.3%	244.0%	4.9%	318.9%	447.2%
S/DEPTH= .5	25.229	19.610	9.233	2.094	22.481	23.166	23.218	23.224	23.222
	30.2%	11.6%	79.1%	627.9%	556.0%	243.9%	5.0%	318.1%	446.3%
S/DEPTH= .4	24.804	19.436	9.358	2.235	22.451	23.163	23.218	23.224	23.222
	28.1%	10.9%	76.5%	580.9%	560.8%	243.8%	5.2%	317.5%	446.5%
S/DEPTH= .3	24.479	19.301	9.452	2.345	22.428	23.161	23.218	23.224	23.222
	28.3%	10.4%	74.5%	548.5%	564.7%	243.7%	5.3%	317.1%	446.9%
S/DEPTH= .2	24.219	19.204	9.518	2.422	22.412	23.160	23.218	23.224	23.222
	27.7%	10.0%	73.2%	527.1%	567.6%	243.7%	5.3%	316.8%	446.4%
S/DEPTH= .1	24.112	19.146	9.557	2.469	22.401	23.159	23.218	23.224	23.222
	27.3%	9.8%	72.4%	515.0%	569.3%	243.7%	5.4%	316.6%	446.2%
S/DEPTH= .0	24.067	19.127	9.570	2.484	22.398	23.159	23.218	23.224	23.222
	27.2%	9.7%	72.1%	511.1%	569.9%	243.6%	5.4%	316.5%	446.1%

CASE 2-B

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.904	.806	.628	.531	.4079	.256.5	.096	.096	.096
	44.7%	18.8%	106.3%	*****	506.8	236.5	9.5%	298.6%	420.5%
SURFACE	.000	12.484	9.476	4.423	.644	.051	.003	.001	.000
	*****	94.8%	86.6%	58.5%	320.4%	*****	*****	*****	*****
S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	11.953							
	*****	94.6%							
S/DEPTH=1.1	.000	10.563							
	*****	94.3%							
S/DEPTH=1.0	.000	9.288	8.622	4.376					
	*****	94.1%	87.5%	64.1%					
S/DEPTH=.9	.000	8.111	7.681	3.979	.609	.048	.003	.001	.000
	*****	94.0%	87.4%	64.5%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	7.019	6.764	3.568	.554	.044	.003	.001	.000
	*****	93.8%	87.3%	64.9%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	5.998	5.869	3.146	.495	.039	.003	.001	.000
	*****	93.7%	87.2%	65.2%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	5.037	4.993	2.713	.431	.034	.003	.001	.000
	*****	93.5%	87.1%	65.4%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	4.125	4.134	2.272	.365	.029	.002	.001	.000
	*****	93.4%	87.1%	65.6%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	3.854	3.290	1.825	.295	.023	.002	.000	.000
	*****	93.3%	87.0%	65.7%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	2.414	2.457	1.373	.223	.018	.001	.000	.000
	*****	93.3%	87.0%	65.9%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	1.596	1.633	.917	.150	.012	.001	.000	.000
	*****	93.2%	86.9%	65.9%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	.794	.815	.459	.075	.006	.000	.000	.000
	*****	93.2%	86.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE: 2=8

TABLE 111-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.904	.606	.428	.331	.079	.096	.096	.096	.096
	44.7%	18.6%	106.3%	*****	506.8%	236.5%	9.5%	298.6%	420.5%
SURFACE	.000	491.776	343.601	146.652	19.984	1.620	.033	.093	.000
S/DEPTH=1.3	*****	96.8%	90.8%	67.9%	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	475.855							
S/DEPTH=1.1	*****	96.7%							
S/DEPTH=1.0	*****	435.596							
S/DEPTH=.9	*****	96.4%							
S/DEPTH=.8	*****	400.680							
S/DEPTH=.7	*****	96.1%							
S/DEPTH=.6	*****	370.555							
S/DEPTH=.5	*****	95.8%							
S/DEPTH=.4	*****	344.742							
S/DEPTH=.3	*****	95.5%							
S/DEPTH=.2	*****	322.837							
S/DEPTH=.1	*****	95.2%							
S/DEPTH=.0	*****	304.496							
S/DEPTH=.9	*****	94.9%							
S/DEPTH=.8	*****	289.431							
S/DEPTH=.7	*****	94.6%							
S/DEPTH=.6	*****	277.410							
S/DEPTH=.5	*****	94.4%							
S/DEPTH=.4	*****	268.247							
S/DEPTH=.3	*****	94.2%							
S/DEPTH=.2	*****	261.800							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	257.971							
S/DEPTH=.9	*****	94.0%							
S/DEPTH=.8	*****	256.702							
S/DEPTH=.7	*****	94.0%							
S/DEPTH=.6	*****	249.421							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	244.421							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	241.800							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	233.928							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	231.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	229.334							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	227.871							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	225.896							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	223.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	221.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	219.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	217.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	215.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	213.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	211.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	209.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	207.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	205.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	203.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	201.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	199.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	197.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	195.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	193.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	191.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	189.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	187.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	185.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	183.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	181.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	179.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	177.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	175.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	173.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	171.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	169.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	167.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	165.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	163.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	161.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	159.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	157.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	155.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	153.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	151.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	149.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	147.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	145.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	143.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	141.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	139.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	137.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	135.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	133.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	131.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	129.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	127.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	125.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	123.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	121.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	119.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	117.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	115.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	113.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	111.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	109.841							
S/DEPTH=.5	*****	94.1%							
S/DEPTH=.4	*****	107.841							
S/DEPTH=.3	*****	94.1%							
S/DEPTH=.2	*****	105.841							
S/DEPTH=.1	*****	94.1%							
S/DEPTH=.0	*****	103.841							
S/DEPTH=.9	*****	89.5%							
S/DEPTH=.8	*****	101.841							
S/DEPTH=.7	*****	94.1%							
S/DEPTH=.6	*****	99.841							
S/DEPTH=.5	*****	99.841							
S/DEPTH=.4	*****	99.841							
S/DEPTH=.3	*****	99.841							
S/DEPTH=.2	*****	99.841							
S/DEPTH=.1	*****	99.841							
S/DEPTH=.0	*****	99.841							

CASE 2=8

TABLE 1=4 DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 9.04	10.0 18.8%	20.0 36.0%	30.0 50.0%	40.0 75.0%	50.0 100.0%	60.0 130.0%	70.0 200.0%	80.0 350.0%	90.0 600.0%	100.0 1000.0%	110.0 1500.0%	120.0 2000.0%	130.0 2500.0%	140.0 3000.0%	150.0 3500.0%	160.0 4000.0%	170.0 4500.0%	180.0 5000.0%	190.0 5500.0%	200.0 6000.0%	210.0 6500.0%	220.0 7000.0%	230.0 7500.0%	240.0 8000.0%	250.0 8500.0%	260.0 9000.0%	270.0 9500.0%	280.0 10000.0%	290.0 10500.0%	300.0 11000.0%	310.0 11500.0%	320.0 12000.0%	330.0 12500.0%	340.0 13000.0%	350.0 13500.0%	360.0 14000.0%	370.0 14500.0%	380.0 15000.0%	390.0 15500.0%	400.0 16000.0%	410.0 16500.0%	420.0 17000.0%	430.0 17500.0%	440.0 18000.0%	450.0 18500.0%	460.0 19000.0%	470.0 19500.0%	480.0 20000.0%	490.0 20500.0%	500.0 21000.0%	510.0 21500.0%	520.0 22000.0%	530.0 22500.0%	540.0 23000.0%	550.0 23500.0%	560.0 24000.0%	570.0 24500.0%	580.0 25000.0%	590.0 25500.0%	600.0 26000.0%	610.0 26500.0%	620.0 27000.0%	630.0 27500.0%	640.0 28000.0%	650.0 28500.0%	660.0 29000.0%	670.0 29500.0%	680.0 30000.0%	690.0 30500.0%	700.0 31000.0%	710.0 31500.0%	720.0 32000.0%	730.0 32500.0%	740.0 33000.0%	750.0 33500.0%	760.0 34000.0%	770.0 34500.0%	780.0 35000.0%	790.0 35500.0%	800.0 36000.0%	810.0 36500.0%	820.0 37000.0%	830.0 37500.0%	840.0 38000.0%	850.0 38500.0%	860.0 39000.0%	870.0 39500.0%	880.0 40000.0%	890.0 40500.0%	900.0 41000.0%	910.0 41500.0%	920.0 42000.0%	930.0 42500.0%	940.0 43000.0%	950.0 43500.0%	960.0 44000.0%	970.0 44500.0%	980.0 45000.0%	990.0 45500.0%	1000.0 46000.0%	1010.0 46500.0%	1020.0 47000.0%	1030.0 47500.0%	1040.0 48000.0%	1050.0 48500.0%	1060.0 49000.0%	1070.0 49500.0%	1080.0 50000.0%	1090.0 50500.0%	1100.0 51000.0%	1110.0 51500.0%	1120.0 52000.0%	1130.0 52500.0%	1140.0 53000.0%	1150.0 53500.0%	1160.0 54000.0%	1170.0 54500.0%	1180.0 55000.0%	1190.0 55500.0%	1200.0 56000.0%	1210.0 56500.0%	1220.0 57000.0%	1230.0 57500.0%	1240.0 58000.0%	1250.0 58500.0%	1260.0 59000.0%	1270.0 59500.0%	1280.0 60000.0%	1290.0 60500.0%	1300.0 61000.0%	1310.0 61500.0%	1320.0 62000.0%	1330.0 62500.0%	1340.0 63000.0%	1350.0 63500.0%	1360.0 64000.0%	1370.0 64500.0%	1380.0 65000.0%	1390.0 65500.0%	1400.0 66000.0%	1410.0 66500.0%	1420.0 67000.0%	1430.0 67500.0%	1440.0 68000.0%	1450.0 68500.0%	1460.0 69000.0%	1470.0 69500.0%	1480.0 70000.0%	1490.0 70500.0%	1500.0 71000.0%	1510.0 71500.0%	1520.0 72000.0%	1530.0 72500.0%	1540.0 73000.0%	1550.0 73500.0%	1560.0 74000.0%	1570.0 74500.0%	1580.0 75000.0%	1590.0 75500.0%	1600.0 76000.0%	1610.0 76500.0%	1620.0 77000.0%	1630.0 77500.0%	1640.0 78000.0%	1650.0 78500.0%	1660.0 79000.0%	1670.0 79500.0%	1680.0 80000.0%	1690.0 80500.0%	1700.0 81000.0%	1710.0 81500.0%	1720.0 82000.0%	1730.0 82500.0%	1740.0 83000.0%	1750.0 83500.0%	1760.0 84000.0%	1770.0 84500.0%	1780.0 85000.0%	1790.0 85500.0%	1800.0 86000.0%	1810.0 86500.0%	1820.0 87000.0%	1830.0 87500.0%	1840.0 88000.0%	1850.0 88500.0%	1860.0 89000.0%	1870.0 89500.0%	1880.0 90000.0%	1890.0 90500.0%	1900.0 91000.0%	1910.0 91500.0%	1920.0 92000.0%	1930.0 92500.0%	1940.0 93000.0%	1950.0 93500.0%	1960.0 94000.0%	1970.0 94500.0%	1980.0 95000.0%	1990.0 95500.0%	2000.0 96000.0%	2010.0 96500.0%	2020.0 97000.0%	2030.0 97500.0%	2040.0 98000.0%	2050.0 98500.0%	2060.0 99000.0%	2070.0 99500.0%	2080.0 100000.0%	2090.0 100500.0%	2100.0 101000.0%	2110.0 101500.0%	2120.0 102000.0%	2130.0 102500.0%	2140.0 103000.0%	2150.0 103500.0%	2160.0 104000.0%	2170.0 104500.0%	2180.0 105000.0%	2190.0 105500.0%	2200.0 106000.0%	2210.0 106500.0%	2220.0 107000.0%	2230.0 107500.0%	2240.0 108000.0%	2250.0 108500.0%	2260.0 109000.0%	2270.0 109500.0%	2280.0 110000.0%	2290.0 110500.0%	2300.0 111000.0%	2310.0 111500.0%	2320.0 112000.0%	2330.0 112500.0%	2340.0 113000.0%	2350.0 113500.0%	2360.0 114000.0%	2370.0 114500.0%	2380.0 115000.0%	2390.0 115500.0%	2400.0 116000.0%	2410.0 116500.0%	2420.0 117000.0%	2430.0 117500.0%	2440.0 118000.0%	2450.0 118500.0%	2460.0 119000.0%	2470.0 119500.0%	2480.0 120000.0%	2490.0 120500.0%	2500.0 121000.0%	2510.0 121500.0%	2520.0 122000.0%	2530.0 122500.0%	2540.0 123000.0%	2550.0 123500.0%	2560.0 124000.0%	2570.0 124500.0%	2580.0 125000.0%	2590.0 125500.0%	2600.0 126000.0%	2610.0 126500.0%	2620.0 127000.0%	2630.0 127500.0%	2640.0 128000.0%	2650.0 128500.0%	2660.0 129000.0%	2670.0 129500.0%	2680.0 130000.0%	2690.0 130500.0%	2700.0 131000.0%	2710.0 131500.0%	2720.0 132000.0%	2730.0 132500.0%	2740.0 133000.0%	2750.0 133500.0%	2760.0 134000.0%	2770.0 134500.0%	2780.0 135000.0%	2790.0 135500.0%	2800.0 136000.0%	2810.0 136500.0%	2820.0 137000.0%	2830.0 137500.0%	2840.0 138000.0%	2850.0 138500.0%	2860.0 139000.0%	2870.0 139500.0%	2880.0 140000.0%	2890.0 140500.0%	2900.0 141000.0%	2910.0 141500.0%	2920.0 142000.0%	2930.0 142500.0%	2940.0 143000.0%	2950.0 143500.0%	2960.0 144000.0%	2970.0 144500.0%	2980.0 145000.0%	2990.0 145500.0%	3000.0 146000.0%	3010.0 146500.0%	3020.0 147000.0%	3030.0 147500.0%	3040.0 148000.0%	3050.0 148500.0%	3060.0 149000.0%	3070.0 149500.0%	3080.0 150000.0%	3090.0 150500.0%	3100.0 151000.0%	3110.0 151500.0%	3120.0 152000.0%	3130.0 152500.0%	3140.0 153000.0%	3150.0 153500.0%	3160.0 154000.0%	3170.0 154500.0%	3180.0 155000.0%	3190.0 155500.0%	3200.0 156000.0%	3210.0 156500.0%	3220.0 157000.0%	3230.0 157500.0%	3240.0 158000.0%	3250.0 158500.0%	3260.0 159000.0%	3270.0 159500.0%	3280.0 160000.0%	3290.0 160500.0%	3300.0 161000.0%	3310.0 161500.0%	3320.0 162000.0%	3330.0 162500.0%	3340.0 163000.0%	3350.0 163500.0%	3360.0 164000.0%	3370.0 164500.0%	3380.0 165000.0%	3390.0 165500.0%	3400.0 166000.0%	3410.0 166500.0%	3420.0 167000.0%	3430.0 167500.0%	3440.0 168000.0%	3450.0 168500.0%	3460.0 169000.0%	3470.0 169500.0%	3480.0 170000.0%	3490.0 170500.0%	3500.0 171000.0%	3510.0 171500.0%	3520.0 172000.0%	3530.0 172500.0%	3540.0 173000.0%	3550.0 173500.0%	3560.0 174000.0%	3570.0 174500.0%	3580.0 175000.0%	3590.0 175500.0%	3600.0 176000.0%	3610.0 176500.0%	3620.0 177000.0%	3630.0 177500.0%	3640.0 178000.0%	3650.0 178500.0%	3660.0 179000.0%	3670.0 179500.0%	3680.0 180000.0%	3690.0 180500.0%	3700.0 181000.0%	3710.0 181500.0%	3720.0 182000.0%	3730.0 182500.0%	3740.0 183000.0%	3750.0 183500.0%	3760.0 184000.0%	3770.0 184500.0%	3780.0 185000.0%	3790.0 185500.0%	3800.0 186000.0%	3810.0 186500.0%	3820.0 187000.0%	3830.0 187500.0%	3840.0 188000.0%	3850.0 188500.0%	3860.0 189000.0%	3870.0 189500.0%	3880.0 190000.0%	3890.0 190500.0%	3900.0 191000.0%	3910.0 191500.0%	3920.0 192000.0%	3930.0 192500.0%	3940.0 193000.0%	3950.0 193500.0%	3960.0 194000.0%	3970.0 194500.0%	3980.0 195000.0%	3990.0 195500.0%	4000.0 196000.0%	4010.0 196500.0%	4020.0 197000.0%	4030.0 197500.0%	4040.0 198000.0%	4050.0 198500.0%	4060.0 199000.0%	4070.0 199500.0%	4080.0 200000.0%	4090.0 200500.0%	4100.0 201000.0%	4110.0 201500.0%	4120.0 202000.0%	4130.0 202500.0%	4140.0 203000.0%	4150.0 203500.0%	4160.0 204000.0%	4170.0 204500.0%	4180.0 205000.0%	4190.0 205500.0%	4200.0 206000.0%	4210.0 206500.0%	4220.0 207000.0%	4230.0 207500.0%	4240.0 208000.0%	4250.0 208500.0%	4260.0 209000.0%	4270.0 209500.0%	4280.0 210000.0%	4290.0 210500.0%	4300.0 211000.0%	4310.0 211500.0%	4320.0 212000.0%	4330.0 212500.0%	4340.0 213000.0%	4350.0 213500.0%	4360.0 214000.0%	4370.0 214500.0%	4380.0 215000.0%	4390.0 215500.0%	4400.0 216000.0%	4410.0 216500.0%	4420.0 217000.0%	4430.0 217500.0%	4440.0 218000.0%	4450.0 218500.0%	4460.0 219000.0%	4470.0 219500.0%	4480.0 220000.0%	4490.0 220500.0%	4500.0 221000.0%	4510.0 221500.0%	4520.0 222000.0%	4530.0 222500.0%	4540.0 223000.0%	4550.0 223500.0%	4560.0 224000.0%	4570.0 224500.0%	4580.0 225000.0%	4590.0 225500.0%	4600.0 226000.0%	4610.0 226500.0%	4620.0 227000.0%	4630.0 227500.0%	4640.0 228000.0%	4650.0 228500.0%	4660.0 229000.0%	4670.0 229500.0%	4680.0 230000.0%	4690.0 230500.0%	4700.0 231000.0%	4710.0 231500.0%	4720.0 232000.0%	4730.0 232500.0%	4740.0 233000.0%	4750.0 233500.0%	4760.0 234000.0%	4770.0 234500.0%	4780.0 235000.0%	4790.0 235500.0%	4800.0 236000.0%	4810.0 236500.0%	4820.0 237000.0%	4830.0 237500.0%	4840.0 238000.0%	4850.0 238500.0%	4860.0 239000.0%	4870.0 239500.0%	4880.0 240000.0%	4890.0 240500.0%	4900.0 241000.0%	4910.0 241500.0%	4920.0 242000.0%	4930.0 242500.0%	4940.0 243000.0%	4950.0 243500.0%	4960.0 244000.0%	4970.0 244500.0%	4980.0 245000.0%	4990.0 245500.0%	5000.0 246000.0%	5010.0 246500.0%	5020.0 247000.0%	5030.0 247500.0%	5040.0 248000.0%	5050.0 248500.0%	5060.0 249000.0%	5070.0 249500.0%	5080.0 250000.0%	5090.0 250500.0%	5100.0 251000.0%	5110.0 251500.0%	5120.0 252000.0%	5130.0 252500.0%	5140.0 253000.0%	5150.0 253500.0%	5160.0 254000.0%	5170.0 254500.0%	5180.0 255000.0%	5190.0 255500.0%	5200.0 256000.0%	5210.0 256500.0%	5220.0 257000.0%	5230.0 257500.0%	5240.0 258000.0%	5250.0 258500.0%	5260.0 259000.0%	5270.0 259500.0%	5280.0 260000.0%	5290.0 260500.0%	5300.0 261000.0%	5310.0 261500.0%	5320.0 262000.0%	5330.0 262500.0%	5340.0 263000.0%	5350.0 263500.0%	5360.0 264000.0%	5370.0 264500.0%	5380.0 265000.0%	5390.0 265500.0%	5400.0 266000.0%	5410.0 266500.0%	5420.0 267000.0%	5430.0 267500.0%	5440.0 268000.0%	5450.0 268500.0%	5460.0 269000.0%	5470.0 269500.0%	5480.0 270000.0%	5490.0 270500.0%	5500.0 271000.0%	5510.0 271500.0%	5520.0 272000.0%	5530.0 272500.0%	5540.0 273000.0%	5550.0 273500.0%	5560.0 274000.0%	5570.0 274500.0%	5580.0 275000.0%	5590.0 275500.0%	5600.0 276000.0%	5610.0 276500.0%	5620.0 277000.0%	5630.0 277500.0%	5640.0 278000.0%	5650.0 278500.0%	5660.0 279000.0%	5670.0 279500.0%	5680.0 280000.0%	5690.0 280500.0%	5700.0 281000.0%	5710.0 281500.0%	5720.0 282000.0%	5730.0 282500.0%	5740.0 283000.0%	5750.0 283500.0%	5760.0 284000.0%	5770.0 284500.0%	5780.0 285000.0%	5790.0 285500.0%	5800.0 286000.0%	5810.0 286500.0%	5820.0 287000.0%	5830.0 287500.0%	5840.0 288000.0%	5850.0 288500.0%	5860.0 289000.0%	5870.0 289500.0%	5880.0 290000.0%	5890.0 290500.0%	5900.0 291000.0%	5910.0 291500.0%	5920.0 292000.0%	5930.0 292500.0%	5940.0 293000.0%	5950.0 293500.0%	5960.0 294000.0%	5970.0 294500.0%	5980.0 295000.0%	5990.0 295500.0%
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CASE 2-B

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT=	0 904 44.7%	10.0 606 18.8%	20.0 228 106.3%	30.0 50.0 30.0	40.0 75.0 100.0	50.0 100.0 130.0	60.0 180.0 420.5%
SURFACE	1007.948	500.971	86.306	4.069	6.065	9.661	9.972
S/DEPTH=1.3	63.0%	27.9%	269.6%	4.069	6.065	9.661	9.972
S/DEPTH=1.2	949.520						
S/DEPTH=1.1	100.0%						
S/DEPTH=1.0	844.744						
S/DEPTH=.9	55.8%						
S/DEPTH=.8	749.126						
S/DEPTH=.7	50.2%						
S/DEPTH=.6	661.184						
S/DEPTH=.5	52.9%						
S/DEPTH=.4	579.673						
S/DEPTH=.3	51.8%						
S/DEPTH=.2	503.539						
S/DEPTH=.1	50.8%						
S/DEPTH=.0	431.882						
S/DEPTH=.9	49.8%						
S/DEPTH=.8	363.920						
S/DEPTH=.7	49.0%						
S/DEPTH=.6	298.972						
S/DEPTH=.5	48.4%						
S/DEPTH=.4	236.431						
S/DEPTH=.3	47.8%						
S/DEPTH=.2	175.751						
S/DEPTH=.1	47.4%						
S/DEPTH=.0	116.429						
S/DEPTH=.9	47.1%						
S/DEPTH=.8	57.995						
S/DEPTH=.7	46.9%						
S/DEPTH=.6	36.609						
S/DEPTH=.5	46.9%						
S/DEPTH=.4	36.609						
S/DEPTH=.3	47.1%						
S/DEPTH=.2	57.995						
S/DEPTH=.1	46.9%						
S/DEPTH=.0	36.609						
S/DEPTH=.9	46.9%						
S/DEPTH=.8	36.609						
S/DEPTH=.7	47.1%						
S/DEPTH=.6	57.995						
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S/DEPTH=.4	36.609						
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S/DEPTH=.0	36.609						
S/DEPTH=.9	46.9%						
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S/DEPTH=.4	36.609						
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S/DEPTH=.8	36.609						
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S/DEPTH=.4	36.609						
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S/DEPTH=.6	57.995						
S/DEPTH=.5	46.9%						
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S/DEPTH=.6	57.995						
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S/DEPTH=.7	47.1%						
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S/DEPTH=.6	57.995						
S/DEPTH=.5	46.9%						
S/DEPTH=.4	36.609						
S/DEPTH=.3	47.1%						
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S/DEPTH=.1	46.9%						
S/DEPTH=.0	36.609						
S/DEPTH=.9	46.9%						
S/DEPTH=.8	36.609						
S/DEPTH=.7	47.1%						
S/DEPTH=.6	57.995						
S/DEPTH=.5	46.9%						
S/DEPTH=.4	36.609						
S/DEPTH=.3	47.1%						
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S/DEPTH=.0	36.609						
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S/DEPTH=.6	57.995						
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S/DEPTH=.4	36.609						
S/DEPTH=.3	47.1%						
S/DEPTH=.2	57.995						
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S/DEPTH=.0	36.609						
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S/DEPTH=.7	47.1%						
S/DEPTH=.6	57.995						
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S/DEPTH=.4	36.609						
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S/DEPTH=.8	36.609						
S/DEPTH=.7	47.1%						
S/DEPTH=.6	57.995						
S/DEPTH=.5	46.9%						
S/DEPTH=.4	36.609						
S/DEPTH=.3	47.1%						
S/DEPTH=.2	57.995						
S/DEPTH=.1	46.9%						
S/DEPTH=.0	36.609						

CASE 2: B

TABLE V. DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
DATA/HEIGHTS =	.904	.606	.228	.031	.019	.005	.006	.006	.006
	44.7%	18.8%	106.3%	*****	506.8%	256.5%	9.5%	298.6%	420.5%

SURFACE	.000	407.060	339.432	170.728	26.219	2.084	.137	.052	.000
	*****	95.4%	89.2%	68.5%	=219.6%	*****	*****	*****	*****
DEPTH 13	.000								

```

39DEPTHE1.2
*****
39.645
000
95.2
39DEPTHE1.1
*****
394.100

```

S/DEPT.H=1.0	.000	302.338	309.260	168.934
*****		94.8%	90.0%	72.7%
S/DEPT.H=.9	.000	283.824	275.690	153.626
			24.785	1.978
				.134
				.000

S/DEPTH= 8	243.223	138.092	22.549	1.800	1.27	-.039	-.000
	60.5%	89.8%	73.3%	163.0%	*****	*****	*****
S/DEPTH= 7	201.745	211.222	121.636	20.134	1.607	-.032	-.000
	104.745%	211.222%	121.636%	20.134%	*****	*****	*****

S/DEPTH=6	.000	163.407	179.834	105.151	17.560	1.402	.104	***	.027
	*****	94.3%	89.7%	73.8%	***	***	***	***	
S/DEPTH=5	.000	137.737	146.991	116.848	14.848	1.186	.089	***	.021
	*****	93.3%	90.9%	78.1%	***	***	***	***	

S/DEPTH= 4	.000	105.419	118.615	70.805	12.019	.981	.073	.000
	*****	89.1%	89.6%	74.1%	*****	*****	*****	.017
S/DEPTH= 3	.000	78.160	86.621	53.282	9.097	.727	.056	.000
	*****	88.1%	88.6%	74.1%	*****	*****	*****	.012

S/DEPTH	2	.000	51.680	58.917	35.604	6.104	.488	.037	.008
		*****	94.0%	89.5%	74.2%	*****	*****	*****	*****
SDEPTH	1	.000	25.712	29.409	17.827	3.064	.245	.019	.004
		*****	91.0%	87.5%	70.2%	*****	*****	*****	*****

[illegible]

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

87

CASE 2-B

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

[illegible]

CASE 2=B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA = ETA/HEIGHT=	10.0 .904 44.7%	20.0 .606 18.8%	30.0 .228 106.3%	50.0 .031 *****	75.0 .079 506.6%	100.0 .096 9.5%	130.0 .096 208.6%	180.0 .096 420.5%
SURFACE	1.812	1.215	.455	.062	.158	.190	.192	.192
S/DEPTH=1.3	47.3%	22.4%	.98.7%	*****	510.8%	256.5%	301.7%	442.9%
S/DEPTH=1.2	100.0%							
S/DEPTH=1.1	44.1%	1.210						
S/DEPTH=1.0	42.2%	1.198						
S/DEPTH=.9	40.5%	1.185	.480	.065				
S/DEPTH=.8	38.8%	1.173	.505	.086	.156	.190	.192	.192
S/DEPTH=.7	37.3%	1.162	.525	.104	.152	.189	.192	.192
S/DEPTH=.6	35.9%	1.151	.542	.120	.149	.189	.192	.192
S/DEPTH=.5	34.7%	1.141	.557	.133	.146	.189	.192	.192
S/DEPTH=.4	33.6%	1.133	.568	.145	.144	.189	.192	.192
S/DEPTH=.3	32.7%	1.126	.577	.154	.142	.188	.192	.192
S/DEPTH=.2	32.0%	1.121	.584	.161	.141	.188	.192	.192
S/DEPTH=.1	31.5%	1.117	.589	.166	.140	.188	.192	.192
S/DEPTH=.0	31.2%	1.114	.592	.169	.139	.188	.192	.192
	31.1%	1.113	.593	.170	.139	.188	.192	.192
		1.109%	.499.9%	.386.1%	562.2%	257.5%	296.40%	436.5%

CASE 2-B

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35) SURFACE	.000	.003	.005	.007	.008	.004	.002	.006	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35) SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36) SURFACE	.023	.021	.017	.011	.004	.019	.021	.004	.022
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37) SURFACE	.002	.001	.000	.000	.000	.000	.000	.000	.000

CASE 2-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.199 (= 11.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.211 (= 136.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.234 (= 114.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.446 (= 125.3%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.434 (= 128.6%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.073 (= 1.5%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.467 (= 114.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.613 (= 141.7%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.179 (= 173.3%)

CASE 2-B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.004962	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.015769	STREAM FUNCTION	.000433
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.007914	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.022598	STREAM FUNCTION	.002267
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.197775	STREAM FUNCTION	.332755
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.005869	STREAM FUNCTION	.144609

CASE 2=C

19TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/b \cdot 28318) \cdot T^{**2}$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .002925 DPT/LO = .005000
H/DPT = .585097
L/LO = .210547 PSI/(G*H*T) = -.000638

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.241738+01	X(2)/(H*T*G) =	-.108313+01
X(3)/(H*T*G) =	-.605744+02	X(4)/(H*T*G) =	-.360214+02
X(5)/(H*T*G) =	-.217465+02	X(6)/(H*T*G) =	-.131436+02
X(7)/(H*T*G) =	-.789114+03	X(8)/(H*T*G) =	-.469926+03
X(9)/(H*T*G) =	-.827679+03	X(10)/(H*T*G) =	-.161273+03
X(11)/(H*T*G) =	-.927108+04	X(12)/(H*T*G) =	-.526491+04
X(13)/(H*T*G) =	-.294232+04	X(14)/(H*T*G) =	-.162236+04
X(15)/(H*T*G) =	-.876138+05	X(16)/(H*T*G) =	-.467439+05
X(17)/(H*T*G) =	-.243012+05	X(18)/(H*T*G) =	-.126184+05
X(19)/(H*T*G) =	-.639932+06		

CASE 2=C

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA	ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
46.1	.927	.116	.470	.116	.014	.068	.072	.072	.073	.073
		.305.2	.4.8		*****	575.7	279.0	19.8	427.5	589.4
SURFACE	17.239	3.693	.607	.2.217	.2.344	.2.346	.2.357	.2.357	.2.357	.2.357
8/DEPTH=1.5	51.2	.2.8	*****	619.8	297.2	31.8	475.1	475.1	475.1	475.1
35.773	100.0									
8/DEPTH=1.4	33.415									
100.0	100.0									
8/DEPTH=1.3	31.366									
42.6	29.587									
8/DEPTH=1.2	39.4									
8/DEPTH=1.1	28.044									
36.3	16.87									
8/DEPTH=1.0	26.710									
33.3	25.529									
8/DEPTH=.9	30.5									
8/DEPTH=.8	24.574									
27.9	23.718									
8/DEPTH=.7	23.718									
25.6	23.038									
8/DEPTH=.6	23.038									
23.5	22.462									
8/DEPTH=.5	21.6									
8/DEPTH=.4	20.1									
8/DEPTH=.3	18.9									
8/DEPTH=.2	18.0									
8/DEPTH=.1	17.5									
8/DEPTH=.0	17.3									

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

95

UNIT: DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

97

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

98

CASE 20C

TABLE V-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.927	.470	.116	.014	.068	.072	.072	.073	.073
	46.1%	4.8%	305.2%	*****	575.7%	279.0%	19.8%	427.5%	589.4%
SURFACE	.000	465.652	277.336	106.132	10.410	.001	.317	.280	.000
	*****	96.2%	87.3%	50.8%	*****	*****	*****	*****	*****
S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH= .9	.000	284.195	234.303	98.368	9.921	.054	.271	.236	.000
	*****	95.6%	89.4%	62.1%	*****	*****	*****	*****	*****
S/DEPTH= .8	.000	244.951	208.274	89.201	9.051	.117	.207	.176	.000
	*****	95.5%	89.4%	62.9%	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	208.554	182.128	79.397	8.106	.151	.157	.130	.000
	*****	95.4%	89.4%	63.5%	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	174.558	155.956	69.043	7.091	.163	.120	.095	.000
	*****	95.3%	89.4%	64.1%	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	142.556	129.613	58.226	6.013	.157	.090	.059	.000
	*****	95.2%	89.4%	64.5%	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	112.170	103.731	47.028	4.879	.140	.066	.019	.000
	*****	95.1%	89.4%	64.9%	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	83.047	77.718	35.530	3.700	.112	.046	.034	.000
	*****	95.1%	89.4%	65.2%	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	54.855	51.771	23.809	2.487	.078	.029	.021	.000
	*****	95.0%	89.4%	65.4%	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	27.076	25.872	11.941	1.029	.040	.014	.010	.000
	*****	95.0%	89.4%	65.4%	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 2=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	0 .027 46.1%	10.0 .470 4.8%	20.0 .116 305.2%	30.0 .014 *****	50.0 50.068 575.7%	75.0 75.072 279.0%	100.0 75.072 19.8%	130.0 130.073 427.5%	180.0 180.073 589.4%
SURFACE	976.518	220.288	14.172	.061	-2.132	-2.514	-2.530	-2.544	-2.537
S/DEPTH=1.5	73.0%	15.5%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	717.421								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	575.839								
S/DEPTH=1.0	54.1%								
S/DEPTH=0.9	459.772								
S/DEPTH=0.8	50.7%								
S/DEPTH=0.7	364.306								
S/DEPTH=0.6	159.711								
S/DEPTH=0.5	47.9%								
S/DEPTH=0.4	150.109								
S/DEPTH=0.3	285.626								
S/DEPTH=0.2	45.2%								
S/DEPTH=0.1	220.752								
S/DEPTH=0.0	42.8%								
S/DEPTH=0.9	167.351								
S/DEPTH=0.8	40.5%								
S/DEPTH=0.7	133.592								
S/DEPTH=0.6	38.5%								
S/DEPTH=0.5	36.7%								
S/DEPTH=0.4	59.578								
S/DEPTH=0.3	35.1%								
S/DEPTH=0.2	37.337								
S/DEPTH=0.1	20.664								
S/DEPTH=0.0	9.079								
S/DEPTH=0.9	2.254								
S/DEPTH=0.8	.000								
S/DEPTH=0.7	.000								
S/DEPTH=0.6	.000								
S/DEPTH=0.5	.000								
S/DEPTH=0.4	.000								
S/DEPTH=0.3	.000								
S/DEPTH=0.2	.000								
S/DEPTH=0.1	.000								
S/DEPTH=0.0	.000								

TABLE V. DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD... DEFINED IN EQUATION (28)

101

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

102

CASE 2-C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.007	.014	.018	.019	.008	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.034	.032	.026	.018	.005	.029	.032	.005	.033
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

CASE 2=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.211 (=16.2%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.159 (=214.6%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.185 (=172.4%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.344 (=191.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.335 (=196.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.972 (=1.7%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.368 (=172.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.461 (=221.1%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.127 (=285.9%)

CASE 2°C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	.011678	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.023753	STREAM FUNCTION	.000230
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	.019707	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.034261	STREAM FUNCTION	.000631
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)		
LINEAR	.298482	STREAM FUNCTION	.512497
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)		
LINEAR	.008378	STREAM FUNCTION	.256664

CASE 2-D

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003884 DPT/LO = .005000

H/DPT = .776719

L/LO = .222852 PSI/(G*H*T) = -.000632

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.195975=01	X(2)/(H*T*G) =	-.899338=02
X(3)/(H*T*G) =	-.520998=02	X(4)/(H*T*G) =	-.324648=02
X(5)/(H*T*G) =	-.206557=02	X(6)/(H*T*G) =	-.132575=02
X(7)/(H*T*G) =	-.847207=03	X(8)/(H*T*G) =	-.540352=03
X(9)/(H*T*G) =	-.341193=03	X(10)/(H*T*G) =	-.214955=03
X(11)/(H*T*G) =	-.133574=03	X(12)/(H*T*G) =	-.829726=04
X(13)/(H*T*G) =	-.506638=04	X(14)/(H*T*G) =	-.311288=04
X(15)/(H*T*G) =	-.187359=04	X(16)/(H*T*G) =	-.115125=04
X(17)/(H*T*G) =	-.692999=05	X(18)/(H*T*G) =	-.440772=05
X(19)/(H*T*G) =	-.276700=05		

CASE 2=D

TABLE 1=DIMENSIONLESS										HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)										THETA = 0										ETA/HEIGHT= 47.0%										180.0										791.9%										50.056										580.1%										130.0										100.0										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0										331.0%										55.0%										50.056										75.0								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CASE 2=0

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 944 47.0%	10.0 944 44.5%	20.0 944 40.5%	30.0 944 37.0%	50.0 944 33.0%	75.0 944 29.0%	100.0 944 25.0%	130.0 944 21.0%	180.0 944 16.0%
SURFACE	.000	13.386	5.070	1.529	.120	-.039	.028	.026	.000
S/DEPTH=1.7	.000	94.3%	71.0%	-37.7%	.000	.000	.000	.000	.000
S/DEPTH=1.6	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.5	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.4	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.3	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.9	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.8	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.7	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.6	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.5	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.4	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 2=D

TABLE II=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD,....DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
FTA/HEIGHT=	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	739.5%	*****	686.7%	331.0%	55.0%	580.1%	791.9%
SURFACE	.000	574.765	161.964	52.365	5.705	5.204	3.676	3.282	.000
	*****	97.6%	84.5%	27.0%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	540.488							
	*****	97.7%							
S/DEPTH=1.1	.000	492.622							
	*****	97.5%							
S/DEPTH=1.0	.000	450.639	168.303						
	*****	97.3%	85.4%						
S/DEPTH=.9	.000	414.110	180.368	55.927	5.600	5.445	3.146	2.817	.000
	*****	97.1%	86.4%	33.2%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	382.615	189.529	60.297	5.514	5.360	2.593	2.151	.000
	*****	96.9%	87.1%	36.3%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	355.765	196.407	64.360	5.518	5.257	1.827	1.647	.000
	*****	96.6%	87.6%	44.4%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	333.209	201.503	68.014	5.577	5.197	1.404	1.269	.000
	*****	96.4%	88.0%	45.6%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	314.641	205.219	71.189	5.665	5.1453	1.091	.987	.000
	*****	96.2%	88.2%	48.2%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	297.802	207.869	73.835	5.763	5.113	.862	.781	.000
	*****	96.0%	88.4%	50.2%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	288.478	209.696	75.919	5.854	5.871	.701	.635	.000
	*****	95.9%	88.5%	51.6%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	280.506	210.878	77.421	5.927	5.710	.594	.537	.000
	*****	95.8%	88.6%	52.6%	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	275.770	211.539	78.326	5.974	5.618	.535	.482	.000
	*****	95.7%	88.6%	53.2%	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	274.199	211.752	78.628	5.990	5.588	.513	.464	.000
	*****	95.7%	88.7%	53.4%	*****	*****	*****	*****	*****

CASE 2=D

TABLE 1=4 DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.940	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	73.9%	73.9%	68.6%	33.0%	55.0%	58.0%	79.1%
SURFACE	215.114	208.345	76.500	11.699	1.386	2.536	1.606	2.272	*****
S/DEPTH=1.7	96.6%	107.5%	107.0%	116.2%	*****	*****	*****	*****	*****
S/DEPTH=1.6	49.584	100.0%	510.170	100.0%	100.0	130.0	180.0	*****	*****
S/DEPTH=1.5	100.0%	498.772	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.4	47.910	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.3	96.5%	441.243	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%
S/DEPTH=1.2	40.479	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%	107.9%
S/DEPTH=1.1	366.006	129.086	129.086	129.086	129.086	129.086	129.086	129.086	129.086
S/DEPTH=1.0	327.315	109.9%	109.9%	109.9%	109.9%	109.9%	109.9%	109.9%	109.9%
S/DEPTH=.9	289.299	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%	112.6%
S/DEPTH=.8	252.441	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%	105.8%
S/DEPTH=.7	216.961	105.9%	105.9%	105.9%	105.9%	105.9%	105.9%	105.9%	105.9%
S/DEPTH=.6	182.896	106.0%	106.0%	106.0%	106.0%	106.0%	106.0%	106.0%	106.0%
S/DEPTH=.5	150.171	106.2%	106.2%	106.2%	106.2%	106.2%	106.2%	106.2%	106.2%
S/DEPTH=.4	118.633	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%	106.3%
S/DEPTH=.3	86.063	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH=.2	56.292	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH=.1	29.017	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%
S/DEPTH=.0	9.8%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%	106.4%

CASE 2=0

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	944	.541	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	739.5%	*****	686.7%	331.0%	555.0%	580.1%	791.9%
SURFACE	1128.433	201.937	10.773	*****	-2.838	-3.037	3.031	3.080	3.038
	61.3%	108.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.7	1074.626								
	100.0%								
S/DEPTH=1.6	950.647								
	100.0%								
S/DEPTH=1.5	809.395								
	100.0%								
S/DEPTH=1.4	706.122								
	38.2%								
S/DEPTH=1.3	617.170								
	34.0%								
S/DEPTH=1.2	539.696	191.493							
	30.5%	90.0%							
S/DEPTH=1.1	471.470	175.197							
	27.2%	69.0%							
S/DEPTH=1.0	410.728	158.832	10.632						
	24.2%	90.0%	10.193						
S/DEPTH=.9	356.058	142.484	9.586						
	21.5%	80.2%	9.13%						
S/DEPTH=.8	306.420	126.211	8.812						
	19.0%	60.6%	8.076						
S/DEPTH=.7	260.583	110.049	8.812						
	16.9%	50.9%	7.880						
S/DEPTH=.6	218.075	94.013	7.880						
	15.0%	41.3%	6.803						
S/DEPTH=.5	178.148	76.107	6.803						
	13.4%	31.7%	5.600						
S/DEPTH=.4	140.250	62.322	5.600						
	12.0%	29.2%	4.294						
S/DEPTH=.3	105.898	46.642	4.294						
	11.0%	24.0%	2.908						
S/DEPTH=.2	68.683	31.046	2.908						
	10.3%	20.0%	1.467						
S/DEPTH=.1	34.153	15.508	1.467						
	*****	*****	*****						
S/DEPTH=.0	0.00	0.00	0.00						
	*****	*****	*****						

CASE 2=D

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.944	.341	.056	.027	.055	.056	.056	.056	.056
	47.0%	44.5%	75.0%	*****	686.7%	331.0%	55.0%	580.1%	791.9%
SURFACE	.000	465.163	207.600	67.962	5.482	-1.771	1.309	1.178	.000
	*****	96.4%	84.0%	26.8%	*****	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000	429.126							
	*****	96.6%							
S/DEPTH=1.1	.000	377.521							
	*****	96.5%							
S/DEPTH=1.0	.000	330.405	200.418						
	*****	96.4%	87.9%						
S/DEPTH=.9	.000	287.211	182.957	63.701	5.158	-1.499	1.116	1.007	.000
	*****	96.3%	88.1%	47.8%	*****	*****	*****	*****	*****
S/DEPTH=.8	.000	247.415	164.441	57.888	4.603	-1.111	.841	.760	.000
	*****	96.1%	86.3%	49.0%	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	210.533	145.128	51.652	4.052	-.819	.631	.551	.000
	*****	96.0%	86.4%	50.1%	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	176.119	125.219	45.030	3.497	-.597	.471	.426	.000
	*****	95.9%	86.5%	51.0%	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	143.759	104.873	38.065	2.935	-.430	.347	.314	.000
	*****	95.9%	88.5%	51.7%	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	113.067	84.211	30.809	2.364	-.303	.250	.226	.000
	*****	95.8%	88.6%	52.3%	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	83.681	63.326	23.317	1.783	-.204	.172	.156	.000
	*****	95.7%	88.6%	52.8%	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	55.259	42.293	15.645	1.194	-.126	.108	.098	.000
	*****	95.7%	88.6%	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	27.472	21.168	7.853	.598	-.060	.052	.047	.000
	*****	95.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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CASE 2=D

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHTS	47.0%	.944	.341	.056	.027	.055	.056	.056	.056
		.44.5%	.739.5%	.*****	.686.7%	.331.0%	.55.0%	.580.1%	.791.9%
SURFACE	.000	332.894	104.336	31.101	2.582	=1.165	.842	.757	.000
	.*****	96.5%	78.1%	.7.6%	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.7	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.6	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.5	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.4	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.3	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.2	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.1	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH=1.0	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .9	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .8	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .7	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .6	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .5	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .4	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .3	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .2	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .1	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****
S/DEPTH= .0	.000	.*****	.*****	.*****	.*****	.*****	.*****	.*****	.*****

TABLE 1. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.015	.028	.036	.036	.015	.009	.020	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.046	.043	.035	.024	.007	.038	.042	.006	.043
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.011	.002	.002	.003	.001	.001	.002	.002

CASE 2=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.223	(=20.8%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.117	(=327.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.146	(=245.8%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.263	(=281.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.260	(=283.0%)
(6)	DIMENSIONLESS GROUP VELOCITY	
	DEFINED IN EQUATION (42)	
	.986	(=3%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.289	(=246.9%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	.354	(=318.8%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.094	(=417.6%)

CASE 2=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021803	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.031614	STREAM FUNCTION	.004596
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.038598	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.045883	STREAM FUNCTION	.020922
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.597824	STREAM FUNCTION	.712623
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.010316	STREAM FUNCTION	.302336

CASE 3=A

12TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .001948 DPT/LO = .010000
 H/DPT = .194817
 L/LO = .259570 PSI/(G*H*T) = -.000724

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.540816=01 X(2)/(H*T*G) = -.162432=01
 X(3)/(H*T*G) = -.525880=02 X(4)/(H*T*G) = -.167286=02
 X(5)/(H*T*G) = -.516234=03 X(6)/(H*T*G) = -.153688=03
 X(7)/(H*T*G) = -.438752=04 X(8)/(H*T*G) = -.118805=04
 X(9)/(H*T*G) = -.300094=05 X(10)/(H*T*G) = -.082088=06
 X(11)/(H*T*G) = -.126602=06 X(12)/(H*T*G) = -.116440=07

TABLE 10. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA = ETA/HEIGHT=	0 37.4%	10.0 6.723 31.9%	20.0 5.538 12.6%	30.0 3.329 31.5%	50.0 1.025 *****	75.0 -1.135 195.5%	100.0 -1.183 52.7%	130.0 -1.199 92.2%	180.0 -1.201 149.0%
SURFACE	.000 *****	4.486 86.7%	6.769 82.7%	6.680 74.5%	3.786 32.4%	1.239 -151.0%	.352 -762.5%	.043 *****	.000 *****
S/DEPTH=1.1	.000 *****	4.274 86.0%	6.733 82.6%	74.5%	3.769 36.2%	1.156 -135.6%	.332 -299	.041 *****	.000 *****
S/DEPTH=1.0	.000 *****	3.780 85.6%	5.989 82.1%	6.224 74.8%	3.400 36.5%	1.039 -132.6%	.299 -265	.037 *****	.000 *****
S/DEPTH=.9	.000 *****	3.319 85.3%	5.285 81.8%	5.532 74.5%	3.028 36.7%	.918 -130.0%	.230 -230	.033 *****	.000 *****
S/DEPTH=.8	.000 *****	2.886 84.9%	4.616 81.5%	4.863 74.3%	2.654 36.9%	.793 -127.8%	.193 -193	.024 *****	.000 *****
S/DEPTH=.7	.000 *****	2.477 84.7%	3.977 81.2%	4.213 74.1%	2.277 37.1%	.666 -125.9%	.156 -156	.019 *****	.000 *****
S/DEPTH=.6	.000 *****	2.088 84.4%	3.363 81.0%	3.580 73.9%	2.077 37.2%	.536 -124.5%	.117 -117	.015 *****	.000 *****
S/DEPTH=.5	.000 *****	1.715 84.2%	2.771 80.8%	2.962 73.7%	1.900 37.3%	.403 -123.3%	.079 -079	.010 *****	.000 *****
S/DEPTH=.4	.000 *****	1.357 84.1%	2.196 80.6%	2.355 73.6%	1.521 37.4%	.270 -135	.039 -039	.005 *****	.000 *****
S/DEPTH=.3	.000 *****	1.008 83.9%	1.636 80.5%	1.758 73.5%	1.141 37.5%	.000 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.2	.000 *****	.668 83.8%	1.085 80.4%	1.168 73.4%	.8761 37.5%	.135 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.1	.000 *****	.333 83.3%	.541 80.4%	.583 73.4%	.381 37.5%	.000 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

CASE 3=A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.799	.723	.538	.329	.025	.135	.183	.201
	37.4%	31.9%	12.6%	-31.5%	*****	195.5%	52.7%	149.0%
SURFACE	.000	122.168	181.140	174.185	93.488	29.434	8.251	1.014
	*****	89.7%	86.2%	78.9%	38.5%	155.2%	*****	*****
S/DEPTH#1.1	.000	118.448	180.629					
	*****	89.3%	86.2%					
S/DEPTH#1.0	.000	110.188	170.506	170.313	93.544			
	*****	88.6%	85.4%	78.5%	38.8%			
S/DEPTH# .9	.000	103.051	161.641	164.772	94.587	30.302	8.544	1.050
	*****	87.9%	84.7%	78.0%	39.8%	145.3%	*****	*****
S/DEPTH# .8	.000	96.927	153.941	159.635	95.424	31.547	8.963	1.104
	*****	87.2%	84.1%	77.4%	40.7%	134.9%	*****	*****
S/DEPTH# .7	.000	91.720	147.526	155.498	96.089	32.571	9.336	1.153
	*****	86.6%	83.4%	76.9%	41.4%	126.4%	*****	*****
S/DEPTH# .6	.000	87.352	141.725	151.757	96.609	33.456	9.661	1.196
	*****	86.0%	82.9%	76.4%	42.0%	119.5%	*****	*****
S/DEPTH# .5	.000	83.759	137.081	148.605	97.010	34.202	9.939	1.233
	*****	85.4%	82.4%	76.8%	42.4%	114.0%	*****	*****
S/DEPTH# .4	.000	80.887	133.545	146.036	97.311	34.811	10.167	1.263
	*****	84.9%	81.9%	75.7%	42.8%	109.6%	*****	*****
S/DEPTH# .3	.000	78.696	130.479	144.045	97.528	35.283	10.346	1.287
	*****	84.6%	81.6%	75.4%	43.0%	106.3%	*****	*****
S/DEPTH# .2	.000	77.152	128.452	142.826	97.674	35.620	10.473	1.304
	*****	84.3%	81.3%	75.2%	43.2%	104.0%	*****	*****
S/DEPTH# .1	.000	76.235	127.825	141.776	97.759	35.822	10.550	1.314
	*****	84.1%	81.2%	75.1%	43.3%	102.7%	*****	*****
S/DEPTH# .0	.000	75.930	126.843	141.493	97.786	35.889	10.576	1.318
	*****	84.0%	81.1%	75.0%	43.4%	102.2%	*****	*****

TABLE IV DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	
ETA/HEIGHT =	.733	.733	.538	.329	.025	.035	.183	.199	
ETA/HEIGHT =	37.4%	31.9%	12.6%	31.5%	*****	195.5%	52.7%	92.1%	
SURFACE	150.663	111.409	31.037	31.241	52.093	22.243	6.742	.870	
	87.0%	82.8%	41.6%	152.5%	121.7%	114.5%	*****	*****	
S/DEPTH#1	141.359	106.710	30.970						
	86.2%	82.0%	41.5%						
S/DEPTH#1	125.457	95.508	29.482						
	85.8%	81.7%	45.8%						
S/DEPTH#1	110.478	84.732	27.535						
	85.5%	81.5%	45.9%						
S/DEPTH#1	95.303	74.342	25.217						
	85.3%	81.3%	47.6%						
S/DEPTH#1	82.024	64.297	22.602						
	85.0%	81.1%	48.9%						
S/DEPTH#1	69.938	54.554	19.749						
	84.8%	80.9%	49.9%						
S/DEPTH#1	57.547	45.068	16.710						
	84.7%	80.7%	50.7%						
S/DEPTH#1	45.565	35.798	13.557						
	84.5%	80.6%	51.3%						
S/DEPTH#1	33.897	25.699	10.234						
	84.4%	80.5%	51.7%						
S/DEPTH#1	22.468	17.728	8.684						
	84.3%	80.4%	53.3%						
S/DEPTH#1	11.195	8.813	3.444						
	84.2%	80.4%	53.3%						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						
	*****	*****	*****						
S/DEPTH#1	.000	.000	.000						

CASE 3=A

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELDS...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 799 37.4%	10.0 .723 31.9%	20.0 .538 12.6%	30.0				50.0				75.0				100.0				130.0				180.0			
				=31.5%				.025				.135				52.7%				.199				.149.0%			
SURFACE	390.349	324.194	187.958	76.114	1.253	9.643	19.202	23.141	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596	23.596
S/DEPTH=.1	56.5%	49.3%	20.7%	65.1%	1.220	8.798	17.879	21.663	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099	22.099
S/DEPTH=.10	53.7%	47.0%	20.4%	71.766	1.167	7.695	15.858	19.4248	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542	19.542
S/DEPTH=.09	52.8%	46.0%	19.3%	60.9%	1.090	6.638	13.816	16.836	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185	17.185
S/DEPTH=.08	51.4%	44.8%	18.7%	57.891	.988	5.619	11.811	14.426	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729	14.729
S/DEPTH=.07	50.8%	44.2%	18.4%	56.5	.864	4.633	9.820	12.019	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273	12.273
S/DEPTH=.06	50.3%	43.8%	18.2%	56.5%	.718	3.674	7.841	9.613	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818	9.818
S/DEPTH=.05	49.9%	43.4%	18.0%	55.8%	.555	2.737	5.872	7.208	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363	7.363
S/DEPTH=.04	49.6%	43.1%	17.8%	55.3%	.378	1.816	3.911	4.805	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909	4.909
S/DEPTH=.03	49.3%	42.8%	17.6%	54.8%	.192	.905	1.954	2.402	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454	2.454
S/DEPTH=.02	49.1%	42.6%	17.4%	7.322	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.01	49.0%	42.5%	17.3%	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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THETA	0	10.0	20.0	30.0	50.0	75.0	100.0
Intensity	0	10	20	30	50	75	100

[illegible]

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEY A =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	37.4%	31.9%	12.6%	5.38	.329	.135	.183	.199	.201
				-31.5%	*****	195.5%	52.7%	-92.2%	-149.0%
SURFACE	240.302	194.992	106.543	39.978	.471	-4.900	-9.345	-11.134	-11.339
	60.8%	53.2%	28.7%	-72.6%	*****	*****	*****	*****	*****
S/DEPTH=1.1	213.582	179.179	105.565						
	55.8%	49.1%	22.0%						
S/DEPTH=1.0	171.009	146.144	86.089	35.491	.470				
	54.5%	47.7%	20.2%	-64.4%	*****				
S/DEPTH=.9	134.636	113.960	68.687	28.952	.441	-4.109	-8.112	-9.758	-9.947
	53.5%	46.7%	19.7%	-62.2%	*****	*****	*****	*****	*****
S/DEPTH=.8	103.728	88.120	53.832	23.010	.396	-3.471	-6.377	-7.705	-7.858
	52.6%	45.8%	19.3%	-60.4%	*****	*****	*****	*****	*****
S/DEPTH=.7	77.679	66.201	40.812	17.702	.338	-2.377	-4.860	-5.896	-6.016
	51.7%	45.1%	18.9%	-58.9%	*****	*****	*****	*****	*****
S/DEPTH=.6	55.993	47.848	29.728	13.057	.272	-1.715	-3.556	-4.330	-4.419
	51.0%	44.4%	18.5%	-57.6%	*****	*****	*****	*****	*****
S/DEPTH=.5	38.266	32.773	20.495	9.096	.204	-1.172	-2.461	-3.006	-3.069
	50.4%	43.8%	18.2%	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	24.172	20.740	13.038	5.835	.139	-.741	-1.571	-1.923	-1.964
	49.9%	43.3%	17.9%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	13.480	11.565	7.300	3.288	.082	-.412	-.882	-1.081	-1.105
	49.5%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	5.939	5.108	3.233	1.463	.037	-.182	-.391	-.481	-.491
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	1.478	1.272	.807	.366	.010	-.045	-.098	-.120	-.123
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA = ETA/HEIGHT	0 .799 37.4%	10.0 .723 31.9%	20.0 .538 12.6%	30.0 .329 31.5%	50.0 .025 *****	75.0 .135 195.5%	100.0 .183 52.7%	130.0 .199 92.2%	160.0 .201 149.0%
SURFACE	***** .000	63.693 88.3%	93.407 84.4%	89.313 76.3%	48.408 34.1%	15.486 150.8%	4.372 *****	.537 *****	.000 *****
S/DEPTH=1.1	***** .000	50.197 87.2%	92.465 84.2%	77.913 76.9%	47.960 41.2%	13.424 122.1%	3.869 *****	.479 *****	.000 *****
S/DEPTH=1.0	***** .000	46.197 86.6%	74.033 83.5%	61.996 76.6%	39.023 41.7%	10.792 117.7%	3.125 *****	.387 *****	.000 *****
S/DEPTH=.9	***** .000	36.071 86.2%	58.258 83.1%	48.201 76.3%	30.947 42.1%	8.387 113.9%	2.438 *****	.303 *****	.000 *****
S/DEPTH=.8	***** .000	27.573 85.8%	44.848 82.7%	36.376 76.0%	23.764 42.4%	6.241 110.7%	1.821 *****	.226 *****	.000 *****
S/DEPTH=.7	***** .000	20.500 85.4%	33.551 82.3%	26.390 75.7%	17.501 42.6%	4.381 121.7%	1.282 *****	.159 *****	.000 *****
S/DEPTH=.6	***** .000	14.681 85.0%	24.158 82.0%	18.150 75.1%	12.177 42.9%	2.828 83.0%	.830 *****	.103 *****	.000 *****
S/DEPTH=.5	***** .000	9.976 84.7%	16.491 81.7%	11.501 75.3%	7.804 43.0%	1.601 47.1%	.471 *****	.059 *****	.000 *****
S/DEPTH=.4	***** .000	6.271 84.5%	10.406 81.5%	7.531 75.2%	4.395 *****	.715 210	.210 *****	.026 *****	.000 *****
S/DEPTH=.3	***** .000	3.479 84.3%	5.790 81.3%	4.425 75.2%	1.955 *****	.179 .053	.053 *****	.007 *****	.000 *****
S/DEPTH=.2	***** .000	1.531 84.3%	2.553 81.3%	2.841 75.2%	.489 *****	.000 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.1	***** .000	.380 84.3%	.635 81.3%	.708 75.2%	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****
S/DEPTH=.0	***** .000	.000 84.3%	.000 81.3%	.000 75.2%	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

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TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	37.0%	7.79%	7.23%	5.38%	.329	.025	.135	.183	.201
			31.9%	12.6%	31.5%	*****	195.5%	52.7%	149.0%
SURFACE	1.600	1.446	1.076	.659	.048	.271	.367	.399	.402
S/DEPTH=1.1	38.8%	33.2%	14.1%	29.9%	*****	201.9%	57.9%	93.0%	153.7%
	1.574	1.332	1.075						
S/DEPTH=1.0	37.8%	32.6%	14.1%						
	1.532	1.400	1.086	.665	.049				
S/DEPTH=.9	36.4%	31.4%	13.8%	28.1%	*****	.266	.365	.398	.402
	1.494	1.371	1.056	.673	.065	203.3%	58.1%	92.7%	153.7%
S/DEPTH=.8	35.2%	30.4%	13.5%	25.9%	*****	203.3%	58.1%	91.7%	152.2%
	1.462	1.346	1.048	.679	.079	205.5%	58.3%	90.8%	151.0%
S/DEPTH=.7	34.1%	29.4%	13.2%	24.1%	*****	205.5%	58.3%	90.0%	149.9%
	1.433	1.324	1.040	.685	.091	207.5%	58.4%	89.0%	149.0%
S/DEPTH=.6	33.1%	28.6%	13.0%	22.6%	599.3%	207.5%	58.4%	88.8%	148.3%
	1.409	1.305	1.034	.689	.101	209.3%	58.6%	88.8%	147.7%
S/DEPTH=.5	32.2%	27.8%	12.7%	21.3%	525.7%	209.3%	58.6%	88.8%	147.7%
	1.388	1.289	1.028	.692	.110	210.9%	58.7%	89.4%	149.0%
S/DEPTH=.4	31.4%	27.2%	12.5%	20.3%	474.7%	210.9%	58.7%	89.4%	149.0%
	1.372	1.276	1.023	.695	.117	212.2%	58.8%	89.7%	149.0%
S/DEPTH=.3	30.8%	26.6%	12.3%	19.6%	438.8%	212.2%	58.8%	89.7%	149.0%
	1.359	1.266	1.019	.697	.122	213.3%	58.8%	89.7%	149.0%
S/DEPTH=.2	30.3%	26.2%	12.2%	19.0%	414.0%	213.3%	58.8%	89.7%	149.0%
	1.350	1.259	1.017	.698	.126	214.1%	58.9%	89.7%	149.0%
S/DEPTH=.1	29.9%	25.9%	12.1%	18.6%	397.6%	214.1%	58.9%	89.7%	149.0%
	1.345	1.255	1.015	.699	.128	214.6%	58.9%	89.7%	149.0%
S/DEPTH=.0	29.7%	25.7%	12.0%	18.3%	388.2%	214.6%	58.9%	89.7%	149.0%
	1.343	1.254	1.014	.700	.129	214.8%	58.9%	89.7%	149.0%
	29.6%	25.6%	12.0%	18.3%	385.2%	214.8%	58.9%	89.7%	149.0%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.002	.002	.003	.001	.001	.002	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.010	.010	.008	.005	.002	.009	.010	.002	.010
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.260 (= 4.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.369 (= 35.5%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.386 (= 30.4%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.755 (= 32.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.730 (= 34.5%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.967 (= 1.2%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.768 (= 30.3%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.060 (= 37.7%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.331 (= 44.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.001747	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007171	STREAM FUNCTION	.000221
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.002631	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.010292	STREAM FUNCTION	.000947
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.100037	STREAM FUNCTION	.156185
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.006053	STREAM FUNCTION	.046715

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12TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003886 DPT/LO = .010000
 H/DPT = .388630
 L/LO = .276172 PSI/(G*H*T) = -.001075

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.407701=01	X(2)/(H*T*G) =	-.152007=01
X(3)/(H*T*G) =	-.650076=02	X(4)/(H*T*G) =	-.279776=02
X(5)/(H*T*G) =	-.116037=02	X(6)/(H*T*G) =	-.484126=03
X(7)/(H*T*G) =	-.192278=03	X(8)/(H*T*G) =	-.733987=04
X(9)/(H*T*G) =	-.267143=04	X(10)/(H*T*G) =	-.910232=05
X(11)/(H*T*G) =	-.282677=05	X(12)/(H*T*G) =	-.729308=06

TABLE 1. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)													
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0				
ETA/HEIGHT	.865	.692	.587	.453	.301	.123	.000	.135	.135				
	42.2%	28.9%	21.3%	183.0%	625.6%	205.2%	34.9%	183.4%	269.6%				
SURFACE	.000	7.808	8.798	6.262	1.933	.337	.056	.002	.000				
*****	91.6%	85.5%	70.6%	40.3%	19.6%	.294	.049	.002	*****				
S/DEPTH=1.3	.000								*****				
*****									*****				
S/DEPTH=1.2	.000	7.152	8.293						*****				
*****	90.9%	85.7%	73.3%						*****				
S/DEPTH=1.1	.000	6.282	7.343						*****				
*****	90.4%	85.4%	73.0%						*****				
S/DEPTH=1.0	.000	5.493	6.453						*****				
*****	90.1%	85.1%	72.9%						*****				
S/DEPTH= .9	.000	4.773	5.756						*****				
*****	89.7%	84.8%	72.8%						*****				
S/DEPTH= .8	.000	4.112	5.014						*****				
*****	89.4%	84.5%	72.7%						*****				
S/DEPTH= .7	.000	3.500	4.420						*****				
*****	89.2%	84.3%	72.6%						*****				
S/DEPTH= .6	.000	2.929	3.837						*****				
*****	88.9%	84.0%	72.5%						*****				
S/DEPTH= .5	.000	2.392	3.340						*****				
*****	88.7%	83.8%	72.4%						*****				
S/DEPTH= .4	.000	1.883	2.842						*****				
*****	88.5%	83.6%	72.3%						*****				
S/DEPTH= .3	.000	1.394	2.364						*****				
*****	88.4%	83.5%	72.2%						*****				
S/DEPTH= .2	.000	.921	1.901						*****				
*****	88.3%	83.4%	72.1%						*****				
S/DEPTH= .1	.000	.458	1.468						*****				
*****	88.2%	83.3%	72.0%						*****				
S/DEPTH= .0	.000	.000	.000						*****				
*****	*****	*****	*****						*****				

TABLE III—DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	42.2%	.865	.587	.153	.061	.123	.133	.135	.135
		28.9%	21.3%	183.0%	625.6%	205.2%	34.9%	183.4%	269.6%
SURFACE	=239.356	=116.184	48.551	99.686	47.333	8.967	1.357	.225	.122
S/DEPTH=1.3	92.1%	84.1%	135.6%	115.4%	120.8%	*****	*****	*****	*****
S/DEPTH=1.2	=230.521	100.0%							
S/DEPTH=1.1	=206.896								
S/DEPTH=1.0	=164.571	=110.917	42.306						
S/DEPTH=.9	90.6%	83.4%	138.0%	91.014	43.831	8.595	1.319	.203	.104
S/DEPTH=.8	=163.517	83.4%	131.924	114.5%	118.0%	*****	*****	*****	*****
S/DEPTH=.7	90.3%	83.4%	145.8%	117.711	39.144	7.826	1.224	.164	.075
S/DEPTH=.6	=143.662	84.060	23.764	115.2%	117.0%	*****	*****	*****	*****
S/DEPTH=.5	90.1%	83.5%	155.4%	116.0%	34.373	6.992	1.110	.132	.053
S/DEPTH=.4	=124.908	=75.051	17.411	116.7%	117.9%	*****	*****	*****	*****
S/DEPTH=.3	89.9%	83.5%	167.1%	117.4%	29.541	6.100	.980	.106	.038
S/DEPTH=.2	=107.140	=65.565	12.524	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.1	89.7%	83.5%	181.6%	117.8%	24.666	5.159	.836	.084	.026
S/DEPTH=.0	=90.239	=56.070	8.819	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.5	89.5%	83.4%	6.054	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.4	=74.077	=46.606	4.025	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.3	89.4%	83.4%	37.192	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.2	=58.530	=37.192	4.025	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.1	89.2%	83.4%	2.555	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.0	=43.773	=27.834	2.555	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.5	89.1%	83.3%	1.487	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.4	=28.780	=18.525	1.487	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.3	89.0%	83.3%	1.487	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.2	=14.329	=9.253	.680	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.1	89.0%	83.3%	1.487	117.8%	117.8%	*****	*****	*****	*****
S/DEPTH=.0	=9.000	=5.000	.000	117.8%	117.8%	*****	*****	*****	*****

TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 3=B

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .865 42.2%	10.0 .692 28.9%	20.0 .387 21.3%	30.0 .153 183.0%	50.0 50.0 625.6%	75.0 75.0 205.2%	100.0 100.0 34.9%	130.0 130.0 183.4%	180.0 180.0 269.6%
SURFACE	.000	174.957	209.030	159.333	53.738	9.675	1.622	.051	.000
S/DEPTH=1.3	*****	92.5%	87.5%	76.0%	10.1%	*****	*****	*****	*****
S/DEPTH=1.2	*****	160.097							
S/DEPTH=1.1	*****	91.8%	197.094						
S/DEPTH=1.0	*****	100.380	87.7%	149.856					
S/DEPTH=.9	*****	122.535	174.604	178.3%	50.248	9.270	1.557	.051	.000
S/DEPTH=.8	*****	91.0%	153.488	134.069	6.3%	*****	*****	*****	.000
S/DEPTH=.7	*****	106.292	87.5%	78.2%	45.402	8.438	1.414	.050	.000
S/DEPTH=.6	*****	90.7%	81.2%	78.0%	8.0%	*****	*****	*****	.000
S/DEPTH=.5	*****	91.413	133.568	118.486	40.290	7.539	1.262	.048	.000
S/DEPTH=.4	*****	90.4%	86.9%	78.1%	9.5%	*****	*****	*****	.000
S/DEPTH=.3	*****	77.685	114.690	103.114	34.948	6.579	1.100	.043	.000
S/DEPTH=.2	*****	90.2%	86.7%	78.0%	10.7%	*****	*****	*****	.000
S/DEPTH=.1	*****	64.922	96.705	87.947	29.412	5.566	.930	.038	.000
S/DEPTH=.0	*****	89.9%	86.5%	78.0%	11.7%	*****	*****	*****	.000
S/DEPTH=.4	*****	52.953	79.471	72.971	23.716	4.508	.753	.031	.000
S/DEPTH=.3	*****	89.7%	86.4%	77.9%	12.5%	*****	*****	*****	.000
S/DEPTH=.2	*****	41.625	62.853	58.162	17.896	3.413	.570	.024	.000
S/DEPTH=.1	*****	89.5%	86.2%	77.8%	13.1%	*****	*****	*****	.000
S/DEPTH=.0	*****	30.795	48.721	43.494	11.982	2.291	.383	.016	.000
S/DEPTH=.4	*****	89.4%	86.1%	77.6%	13.5%	*****	*****	*****	.000
S/DEPTH=.3	*****	20.330	30.949	28.934	6.006	1.150	.192	.008	.000
S/DEPTH=.2	*****	89.3%	86.0%	77.8%	*****	*****	*****	*****	.000
S/DEPTH=.1	*****	10.106	15.415	14.448	*****	*****	*****	*****	.000
S/DEPTH=.0	*****	86.0%	86.0%	77.6%	*****	*****	*****	*****	.000
S/DEPTH=.4	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	.000

CASE 3=B

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 42.2%	8.65 28.9%	10.0 69.2%	20.0 38.7%	30.0 15.3%	50.0 6.061%	75.0 2.123%	100.0 0.349%	130.0 0.135%	180.0 0.135%
SURFACE	344.625	214.035	64.767	10.926	0.682	0.3779	0.535	0.684	0.686	0.686
S/DEPTH=1.3	67.4%	49.3%	50.2%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=1.2	100.0%	186.003	59.249	10.080	0.682	0.3779	0.535	0.684	0.686	0.686
S/DEPTH=1.1	56.2%	150.423	41.7%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=1.0	204.887	120.072	38.9%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.9	51.9%	37.2%	40.2%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.8	125.532	94.268	39.4%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.7	50.1%	35.6%	38.8%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.6	95.586	72.442	34.1%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.5	48.5%	34.1%	23.940	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.4	70.897	54.127	38.3%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.3	47.1%	32.8%	38.0%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.2	50.634	30.938	12.175	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.1	34.353	26.565	30.7%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	48.7%	16.758	7.780	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	21.574	4.88%	4.371	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	11.959	9.321	4.371	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	5.260	4.110	1.941	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	1.307	1.023	0.485	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	0.000	0.000	0.000	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
S/DEPTH=0.0	0.000	0.000	0.000	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	0 .065 42.2%	10.0 .892 28.9%	20.0 .587 21.3%	30.0 .153 183.0%	50.0 .061 635.6%	75.0 123 205.2%	100.0 130.0 100.0	130.0 180.0 130.0	160.0 2135 269.6%
SURFACE	1.736	1.388	.776	.306	.123	.247	.267	.271	.271
S/DEPTH=1.3	44.8%	31.9%	16.9%	176.1%	627.6%	218.9%	49.4%	184.6%	283.4%
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	1.363								
S/DEPTH=1.0	30.6%		.784						
S/DEPTH=.9	41.5%		15.2%						
S/DEPTH=.8	1.577		12.9%						
S/DEPTH=.7	39.6%		804						
S/DEPTH=.6	1.522		11.1%						
S/DEPTH=.5	37.7%		137.5%						
S/DEPTH=.4	1.473		9.7%						
S/DEPTH=.3	36.0%		122.8%						
S/DEPTH=.2	1.430		816						
S/DEPTH=.1	34.4%		8.7%						
S/DEPTH=.0	1.393		7.8%						
S/DEPTH=.0	32.9%		101.5%						
S/DEPTH=.0	1.362		94.7%						
S/DEPTH=.0	31.6%		6.8%						
S/DEPTH=.0	1.336		6.2%						
S/DEPTH=.0	30.5%		1.73						
S/DEPTH=.0	1.315		22.0%						
S/DEPTH=.0	29.5%		6.4%						
S/DEPTH=.0	1.298		21.5%						
S/DEPTH=.0	28.8%		6.2%						
S/DEPTH=.0	1.287		21.1%						
S/DEPTH=.0	28.2%		6.2%						
S/DEPTH=.0	1.280		20.9%						
S/DEPTH=.0	27.9%		6.1%						
S/DEPTH=.0	1.278		20.8%						
S/DEPTH=.0	27.6%		6.0%						
S/DEPTH=.0	1.271		27.1%						
S/DEPTH=.0	27.0%		27.0%						
S/DEPTH=.0	1.264		26.9%						
S/DEPTH=.0	26.8%		26.8%						
S/DEPTH=.0	1.257		26.7%						
S/DEPTH=.0	26.6%		26.6%						
S/DEPTH=.0	1.250		26.5%						
S/DEPTH=.0	26.4%		26.4%						
S/DEPTH=.0	1.243		26.3%						
S/DEPTH=.0	26.2%		26.2%						
S/DEPTH=.0	1.236		26.1%						
S/DEPTH=.0	26.0%		26.0%						
S/DEPTH=.0	1.229		25.9%						
S/DEPTH=.0	25.8%		25.8%						
S/DEPTH=.0	1.222		25.7%						
S/DEPTH=.0	25.6%		25.6%						
S/DEPTH=.0	1.215		25.5%						
S/DEPTH=.0	25.4%		25.4%						
S/DEPTH=.0	1.208		25.3%						
S/DEPTH=.0	25.2%		25.2%						
S/DEPTH=.0	1.201		25.1%						
S/DEPTH=.0	25.0%		25.0%						
S/DEPTH=.0	1.194		24.9%						
S/DEPTH=.0	24.8%		24.8%						
S/DEPTH=.0	1.187		24.7%						
S/DEPTH=.0	24.6%		24.6%						
S/DEPTH=.0	1.180		24.5%						
S/DEPTH=.0	24.4%		24.4%						
S/DEPTH=.0	1.173		24.3%						
S/DEPTH=.0	24.2%		24.2%						
S/DEPTH=.0	1.166		24.1%						
S/DEPTH=.0	24.0%		24.0%						
S/DEPTH=.0	1.159		23.9%						
S/DEPTH=.0	23.8%		23.8%						
S/DEPTH=.0	1.152		23.7%						
S/DEPTH=.0	23.6%		23.6%						
S/DEPTH=.0	1.145		23.5%						
S/DEPTH=.0	23.4%		23.4%						
S/DEPTH=.0	1.138		23.3%						
S/DEPTH=.0	23.2%		23.2%						
S/DEPTH=.0	1.131		23.1%						
S/DEPTH=.0	23.0%		23.0%						
S/DEPTH=.0	1.124		22.9%						
S/DEPTH=.0	22.8%		22.8%						
S/DEPTH=.0	1.117		22.7%						
S/DEPTH=.0	22.6%		22.6%						
S/DEPTH=.0	1.110		22.5%						
S/DEPTH=.0	22.4%		22.4%						
S/DEPTH=.0	1.103		22.3%						
S/DEPTH=.0	22.2%		22.2%						
S/DEPTH=.0	1.096		22.1%						
S/DEPTH=.0	22.0%		22.0%						
S/DEPTH=.0	1.089		21.9%						
S/DEPTH=.0	21.8%		21.8%						
S/DEPTH=.0	1.082		21.7%						
S/DEPTH=.0	21.6%		21.6%						
S/DEPTH=.0	1.075		21.5%						
S/DEPTH=.0	21.4%		21.4%						
S/DEPTH=.0	1.068		21.3%						
S/DEPTH=.0	21.2%		21.2%						
S/DEPTH=.0	1.061		21.1%						
S/DEPTH=.0	21.0%		21.0%						
S/DEPTH=.0	1.054		20.9%						
S/DEPTH=.0	20.8%		20.8%						
S/DEPTH=.0	1.047		20.7%						
S/DEPTH=.0	20.6%		20.6%						
S/DEPTH=.0	1.040		20.5%						
S/DEPTH=.0	20.4%		20.4%						
S/DEPTH=.0	1.033		20.3%						
S/DEPTH=.0	20.2%		20.2%						
S/DEPTH=.0	1.026		20.1%						
S/DEPTH=.0	20.0%		20.0%						
S/DEPTH=.0	1.019		19.9%						
S/DEPTH=.0	19.8%		19.8%						
S/DEPTH=.0	1.012		19.7%						
S/DEPTH=.0	19.6%		19.6%						
S/DEPTH=.0	1.005		19.5%						
S/DEPTH=.0	19.4%		19.4%						
S/DEPTH=.0	1.000		19.3%						
S/DEPTH=.0	19.2%		19.2%						
S/DEPTH=.0	1.000		19.1%						
S/DEPTH=.0	19.0%		19.0%						
S/DEPTH=.0	1.000		18.9%						
S/DEPTH=.0	18.8%		18.8%						
S/DEPTH=.0	1.000		18.7%						
S/DEPTH=.0	18.6%		18.6%						
S/DEPTH=.0	1.000		18.5%						
S/DEPTH=.0	18.4%		18.4%						
S/DEPTH=.0	1.000		18.3%						
S/DEPTH=.0	18.2%		18.2%						
S/DEPTH=.0	1.000		18.1%						
S/DEPTH=.0	18.0%		18.0%						
S/DEPTH=.0	1.000		17.9%						
S/DEPTH=.0	17.8%		17.8%						
S/DEPTH=.0	1.000		17.7%						
S/DEPTH=.0	17.6%		17.6%						
S/DEPTH=.0	1.000		17.5%						
S/DEPTH=.0	17.4%		17.4%						
S/DEPTH=.0	1.000		17.3%						
S/DEPTH=.0	17.2%		17.2%						
S/DEPTH=.0	1.000		17.1%						
S/DEPTH=.0	17.0%		17.0%						
S/DEPTH=.0	1.000		16.9%						
S/DEPTH=.0	16.8%		16.8%						
S/DEPTH=.0	1.000		16.7%						
S/DEPTH=.0	16.6%		16.6%						
S/DEPTH=.0	1.000		16.5%						
S/DEPTH=.0	16.4%		16.4%						
S/DEPTH=.0	1.000		16.3%						
S/DEPTH=.0	16.2%		16.2%						
S/DEPTH=.0	1.000		16.1%						
S/DEPTH=.0	16.0%		16.0%						
S/DEPTH=.0	1.000		15.9%						
S/DEPTH=.0	15.8%		15.8%						
S/DEPTH=.0	1.000		15.7%						
S/DEPTH=.0	15.6%		15.6%						
S/DEPTH=.0	1.000		15.5%						
S/DEPTH=.0	15.4%		15.4%						
S/DEPTH=.0	1.000		15.3%						
S/DEPTH=.0	15.2%		15.2%						
S/DEPTH=.0	1.000		15.1%						
S/DEPTH=.0	15.0%		15.0%						
S/DEPTH=.0	1.000		14.9%						
S/DEPTH=.0	14.8%		14.8%						
S/DEPTH=.0	1.000		14.7%						
S/DEPTH=.0	14.6%		14.6%						
S/DEPTH=.0	1.000		14.5%						
S/DEPTH=.0	14.4%		14.4%						
S/DEPTH=.0	1.000		14.3%						
S/DEPTH=.0	14.2%		14.2%						
S/DEPTH=.0	1.000		14.1%						
S/DEPTH=.0	14.0%		14.0%						
S/DEPTH=.0	1.000		13.9%						
S/DEPTH=.0	13.8%		13.8%						
S/DEPTH=.0	1.000		13.7%						
S/DEPTH=.0	13.6%		13.6%						
S/DEPTH=.0	1.000		13.5%						
S/DEPTH=.0	13.4%		13.4%						
S/DEPTH=.0	1.000		13.3%						
S/DEPTH=.0	13.2%		13.2%						
S/DEPTH=.0	1.000		13.1%						
S/DEPTH=.0	13.0%		13.0%						
S/DEPTH=.0	1.000		12.9%						
S/DEPTH=.0	12.8%		12.8%						
S/DEPTH=.0	1.000		12.7%						
S/DEPTH=.0	12.6%		12.6%						
S/DEPTH=.0	1.000		12.5%						
S/DEPTH=.0	12.4%		12.4%						
S/DEPTH=.0	1.000		12.3%						
S/DEPTH=.0	12.2%		12.2%						
S/DEPTH=.0	1.000		12.1%						
S/DEPTH=.0	12.0%		12.0%						
S/DEPTH=.0	1.000		11.9%						
S/DEPTH=.0	11.8%		11.8%						
S/DEPTH=.0	1.000		11.7%						
S/DEPTH=.0	11.6%		11.6%						
S/DEPTH=.0	1.000		11.5%						
S/DEPTH=.0	11.4%		11.4%						
S/DEPTH=.0	1.000		11.3%						
S/DEPTH=.0	11.2%		11.2%						
S/DEPTH=.0	1.000		11.1%						
S/DEPTH=.0	11.0%		11.0%						
S/DEPTH=.0	1.000		10.9%						
S/DEPTH=.0	10.8%		10.8%						
S/DEPTH=.0	1.000		10.7%						

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.004	.008	.010	.011	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.021	.020	.016	.011	.003	.017	.019	.003	.020
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.003	.002	.001	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.276 (10.1%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.276 (81.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.304 (85.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.580 (73.1%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.558 (76.0%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.963 (1.7%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.605 (65.4%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.789 (85.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.231 (107.4%)

CASE 3=B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.007127	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.014347	STREAM FUNCTION	.000762
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.011409	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.020881	STREAM FUNCTION	.003223
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.200945	STREAM FUNCTION	.328841
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.011712	STREAM FUNCTION	.148047

CASE 3=C

17TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28318)^{1/3} T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .005821 DPT/LO = .01000

H/DPT = .582125

L/LO = .291992 PSI/(G**H*T) = -.001219

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	.323010=01	X(2)/(H*T*G) =	-.130547=01
X(3)/(H*T*G) =	-.626027=02	X(4)/(H*T*G) =	-.308047=02
X(5)/(H*T*G) =	-.150364=02	X(6)/(H*T*G) =	-.721618=03
X(7)/(H*T*G) =	-.338902=03	X(8)/(H*T*G) =	-.155289=03
X(9)/(H*T*G) =	-.692566=04	X(10)/(H*T*G) =	-.299550=04
X(11)/(H*T*G) =	-.124924=04	X(12)/(H*T*G) =	-.498885=05
X(13)/(H*T*G) =	-.188495=05	X(14)/(H*T*G) =	-.663514=06
X(15)/(H*T*G) =	-.212018=06	X(16)/(H*T*G) =	-.610408=07
X(17)/(H*T*G) =	-.177999=07		

TABLE 7. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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CASE 1=C

TABLE 11=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	44.3%	39.8	.596	.251	.059	.072	.102	.102	.102
		17.3%	.87.0%	.630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	.000	10.016	8.296	4.604	.956	.112	.013	.000	.000
*****	92.9%	83.4%	57.1%	190.9%	*****	*****	*****	*****	*****
S/DEPTH=1.5	.000								
*****	*****								
S/DEPTH=1.4	.000								
*****	*****								
S/DEPTH=1.3	.000	9.403							
*****	92.5%								
S/DEPTH=1.2	.000	8.206							
*****	92.0%								
S/DEPTH=1.1	.000	7.146	7.866						
*****	91.6%	85.0%	85.0%						
S/DEPTH=1.0	.000	6.199	6.978	4.456					
*****	91.2%	84.6%	84.6%	64.8%					
S/DEPTH=.9	.000	5.349	6.140	4.020	.914	.109	.012	.000	.000
*****	90.8%	84.3%	84.3%	64.9%	136.3%	*****	*****	*****	*****
S/DEPTH=.8	.000	4.580	5.348	3.579	.835	.100	.011	.000	.000
*****	90.5%	84.0%	84.0%	65.0%	129.5%	*****	*****	*****	*****
S/DEPTH=.7	.000	3.877	4.596	3.134	.748	.090	.010	.000	.000
*****	90.2%	83.7%	83.7%	65.1%	123.8%	*****	*****	*****	*****
S/DEPTH=.6	.000	3.229	3.877	2.686	.654	.079	.009	.000	.000
*****	89.9%	83.5%	83.5%	65.2%	119.1%	*****	*****	*****	*****
S/DEPTH=.5	.000	2.627	3.188	2.838	.554	.067	.008	.000	.000
*****	89.7%	83.3%	83.3%	65.2%	115.2%	*****	*****	*****	*****
S/DEPTH=.4	.000	2.060	2.522	1.790	.449	.055	.006	.000	.000
*****	89.5%	83.1%	83.1%	65.2%	115.2%	*****	*****	*****	*****
S/DEPTH=.3	.000	1.522	1.875	1.342	.340	.042	.005	.000	.000
*****	89.4%	83.0%	83.0%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.2	.000	1.004	1.242	.894	.229	.028	.003	.000	.000
*****	89.2%	82.9%	82.9%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.1	.000	.499	.619	.447	.115	.014	.002	.000	.000
*****	88.8%	82.8%	82.8%	65.3%	115.2%	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 3=C

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	87.0%	630.8%	545.8%	231.3%	14.5%	275.8%	390.6%
SURFACE	.000	225.596	204.711	124.949	28.491	3.417	.386	.003	.000
S/DEPTH=1.5	*****	94.4%	87.7%	70.1%	104.3%	*****	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****								
S/DEPTH=1.1	*****								
S/DEPTH=1.0	*****								
S/DEPTH= .9	*****								
S/DEPTH= .8	*****								
S/DEPTH= .7	*****								
S/DEPTH= .6	*****								
S/DEPTH= .5	*****								
S/DEPTH= .4	*****								
S/DEPTH= .3	*****								
S/DEPTH= .2	*****								
S/DEPTH= .1	*****								
S/DEPTH= .0	*****								

CASE 3=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	-87.0%	-630.8%	545.6%	231.3%	14.5%	-275.8%	-390.6%
SURFACE	454.271	183.134	31.411	2.580	-1.017	-2.251	-2.423	-2.446	-2.446
S/DEPTH=1.5	70.8%	30.4%	-261.8%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	431.682	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.3	167.009	167.009	167.009	167.009	167.009	167.009	167.009	167.009	167.009
S/DEPTH=1.2	217.975	217.975	217.975	217.975	217.975	217.975	217.975	217.975	217.975
S/DEPTH=1.1	171.698	171.698	171.698	171.698	171.698	171.698	171.698	171.698	171.698
S/DEPTH=1.0	133.907	133.907	133.907	133.907	133.907	133.907	133.907	133.907	133.907
S/DEPTH= .9	103.008	103.008	103.008	103.008	103.008	103.008	103.008	103.008	103.008
S/DEPTH= .8	77.769	77.769	77.769	77.769	77.769	77.769	77.769	77.769	77.769
S/DEPTH= .7	57.228	57.228	57.228	57.228	57.228	57.228	57.228	57.228	57.228
S/DEPTH= .6	40.642	40.642	40.642	40.642	40.642	40.642	40.642	40.642	40.642
S/DEPTH= .5	27.432	27.432	27.432	27.432	27.432	27.432	27.432	27.432	27.432
S/DEPTH= .4	17.156	17.156	17.156	17.156	17.156	17.156	17.156	17.156	17.156
S/DEPTH= .3	9.480	9.480	9.480	9.480	9.480	9.480	9.480	9.480	9.480
S/DEPTH= .2	4.160	4.160	4.160	4.160	4.160	4.160	4.160	4.160	4.160
S/DEPTH= .1	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.898	.596	.251	.059	.072	.099	.102	.102	.102
	40.3%	17.3%	87.0%	=630.8%	545.6%	231.3%	14.5%	=275.8%	=390.6%
SURFACE	.000	179.617	125.380	63.885	12.581	1.462	.163	.000	.000
S/DEPTH=1.5	*****	95.4%	87.1%	63.3%	=177.2%	*****	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****	161.244							
S/DEPTH=1.1	*****	94.9%							
S/DEPTH=1.0	*****	127.314							
S/DEPTH=.9	*****	94.4%							
S/DEPTH=.8	*****	99.596	113.735						
S/DEPTH=.7	*****	94.0%	89.5%	59.917					
S/DEPTH=.6	*****	93.6%	89.2%	75.3%					
S/DEPTH=.5	*****	93.3%	88.9%	48.953					
S/DEPTH=.4	*****	92.9%	88.7%	38.915					
S/DEPTH=.3	*****	92.6%	88.4%	29.919					
S/DEPTH=.2	*****	92.3%	88.1%	21.919					
S/DEPTH=.1	*****	92.0%	87.8%	16.0%					
S/DEPTH=.0	*****	91.7%	87.5%	11.434					
S/DEPTH=.0	*****	91.4%	87.2%	7.62%					
S/DEPTH=.0	*****	91.1%	86.9%	4.061					
S/DEPTH=.0	*****	90.8%	86.6%	2.654					
S/DEPTH=.0	*****	90.5%	86.3%	1.517					
S/DEPTH=.0	*****	90.2%	86.0%	.682					
S/DEPTH=.0	*****	90.0%	85.8%	.172					
S/DEPTH=.0	*****	89.8%	85.6%	.000					
S/DEPTH=.0	*****	89.6%	85.4%	.000					
S/DEPTH=.0	*****	89.4%	85.2%	.000					
S/DEPTH=.0	*****	89.2%	85.0%	.000					
S/DEPTH=.0	*****	89.0%	84.8%	.000					
S/DEPTH=.0	*****	88.8%	84.6%	.000					
S/DEPTH=.0	*****	88.6%	84.4%	.000					
S/DEPTH=.0	*****	88.4%	84.2%	.000					
S/DEPTH=.0	*****	88.2%	84.0%	.000					
S/DEPTH=.0	*****	88.0%	83.8%	.000					
S/DEPTH=.0	*****	87.8%	83.6%	.000					
S/DEPTH=.0	*****	87.6%	83.4%	.000					
S/DEPTH=.0	*****	87.4%	83.2%	.000					
S/DEPTH=.0	*****	87.2%	83.0%	.000					
S/DEPTH=.0	*****	87.0%	82.8%	.000					
S/DEPTH=.0	*****	86.8%	82.6%	.000					
S/DEPTH=.0	*****	86.6%	82.4%	.000					
S/DEPTH=.0	*****	86.4%	82.2%	.000					
S/DEPTH=.0	*****	86.2%	82.0%	.000					
S/DEPTH=.0	*****	86.0%	81.8%	.000					
S/DEPTH=.0	*****	85.8%	81.6%	.000					
S/DEPTH=.0	*****	85.6%	81.4%	.000					
S/DEPTH=.0	*****	85.4%	81.2%	.000					
S/DEPTH=.0	*****	85.2%	81.0%	.000					
S/DEPTH=.0	*****	85.0%	80						

CASE 3=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.898	.596	.251	.059	.072	.099	.102	.102	.102
	44.3%	17.3%	87.0%	630.8%	545.6%	231.3%	14.5%	275.8%	390.6%
SURFACE	1.802	1.194	.503	.118	.145	.198	.204	.204	.204
S/DEPTH=1.5	48.0%	22.6%	76.9%	60.4%	54.6%	257.1%	43.3%	278.4%	417.7%
	1.781								
S/DEPTH=1.4	100.0%								
	1.695								
S/DEPTH=1.3	100.0%								
	1.616								
S/DEPTH=1.2	42.1%	1.167							
	1.543								
S/DEPTH=1.1	39.7%	21.2%							
	1.478	1.147	.520						
S/DEPTH=1.0	37.5%	20.2%	69.6%						
	1.420	1.126	.551	.130					
S/DEPTH= .9	35.1%	19.1%	59.4%	531.7%	.139	.197	.204	.204	.204
	1.368	1.106	.575	405.9%	562.6%	257.7%	44.0%	100.0%	100.0%
S/DEPTH= .8	33.0%	18.1%	51.9%	331.1%	.189	.196	.203	.204	.204
	1.323	1.088	.595	591.8%	591.8%	258.6%	45.1%	278.3%	417.8%
S/DEPTH= .7	30.9%	17.0%	46.2%	.213	.123	.195	.203	.204	.204
	1.284	1.071	.611	282.4%	621.5%	259.5%	46.2%	276.6%	417.5%
S/DEPTH= .6	29.1%	16.0%	41.9%	.232	.116	.194	.203	.204	.204
	1.251	1.056	.623	249.0%	651.0%	260.3%	47.1%	274.8%	415.0%
S/DEPTH= .5	27.5%	15.0%	38.7%	.249	.110	.193	.203	.204	.204
	1.223	1.042	.633	225.5%	676.2%	261.0%	47.9%	272.8%	412.8%
S/DEPTH= .4	26.0%	14.2%	36.2%	.262	.105	.193	.203	.204	.204
	1.201	1.032	.641	208.7%	704.9%	261.6%	48.5%	271.0%	411.0%
S/DEPTH= .3	24.6%	13.5%	34.3%	.271	.102	.192	.203	.204	.204
	1.184	1.023	.646	196.9%	726.7%	262.0%	49.0%	270.3%	409.7%
S/DEPTH= .2	23.9%	12.9%	33.0%	.278	.099	.192	.203	.204	.204
	1.172	1.017	.650	189.2%	743.5%	262.4%	49.3%	269.3%	408.7%
S/DEPTH= .1	23.2%	12.5%	32.1%	.283	.097	.192	.203	.204	.204
	1.165	1.013	.652	184.7%	754.0%	262.6%	49.5%	269.0%	408.1%
S/DEPTH= .0	22.7%	12.3%	31.5%	.284	.097	.192	.203	.204	.204
	1.162	1.012	.653	183.3%	757.6%	262.6%	49.6%	268.8%	407.9%
	22.6%	12.2%	31.4%						

CASE 3-C

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.011	.020	.026	.027	.012	.007	.017	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.032	.030	.025	.017	.004	.026	.029	.004	.029
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.001	.000	.000	.000	.000	.000	.000	.000

CASE 30C

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.292 (15.0%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.211 (=136.5%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.244 (=107.2%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.455 (=120.8%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.438 (=124.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.962 (=1.8%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.485 (=106.3%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.504 (=142.0%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.166 (=188.0%)

CASE 3=C

TABLE XI(CONT.)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.016695	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.021592	STREAM FUNCTION	.000657
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.028308	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.031850	STREAM FUNCTION	.002942
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.303249	STREAM FUNCTION	.515032
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.016653	STREAM FUNCTION	.264397

CASE 3=D

19TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

L0 = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $L0 = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/L0 = .007753 DPT/L0 = .010000

H/DPT = .775326

L/L0 = .308203 PSI/(G*H*T) = -.001185

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.258552e+01	X(2)/(H*T*G) =	-.109137e+01
X(3)/(H*T*G) =	-.957257e+02	X(4)/(H*T*G) =	-.296328e+02
X(5)/(H*T*G) =	-.157702e+02	X(6)/(H*T*G) =	-.633384e+03
X(7)/(H*T*G) =	-.434048e+03	X(8)/(H*T*G) =	-.223528e+03
X(9)/(H*T*G) =	-.112953e+03	X(10)/(H*T*G) =	-.565075e+04
X(11)/(H*T*G) =	-.276158e+04	X(12)/(H*T*G) =	-.134811e+04
X(13)/(H*T*G) =	-.655123e+05	X(14)/(H*T*G) =	-.306023e+05
X(15)/(H*T*G) =	-.139533e+05	X(16)/(H*T*G) =	-.712364e+06
X(17)/(H*T*G) =	-.348364e+06	X(18)/(H*T*G) =	-.247076e+06
X(19)/(H*T*G) =	-.179655e+06		

CASE 30-D

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
	THETA ETA/HEIGHT=	10.0 .460 7.1%	20.0 .154 205.3%	30.0 .015 *****	50.0 *****	75.0 *****	100.0 *****	130.0 *****	180.0 *****
		.922	.460	.154	.015	.064	.077	.078	.078
		45.8%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	29.603	12.947 .9%	3.819 -220.0%	.257 *****	=1.490 655.9%	=1.730 290.7%	=1.752 25.0%	=1.759 442.7%	=1.750 609.2%
S/DEPTH=1.7	29.127								
S/DEPTH=1.6	26.292								
S/DEPTH=1.5	23.908								
S/DEPTH=1.4	21.894								
S/DEPTH=1.3	20.188								
S/DEPTH=1.2	18.739								
S/DEPTH=1.1	17.507		3.889						
S/DEPTH=1.0	16.459		208.0%						
S/DEPTH=.9	15.370		182.6%	*****	.290				
S/DEPTH=.8	14.818		150.8%	*****					
S/DEPTH=.7	14.188		140.8%	*****					
S/DEPTH=.6	13.665		132.9%	*****					
S/DEPTH=.5	13.238		127.0%	*****					
S/DEPTH=.4	12.900		122.6%	*****					
S/DEPTH=.3	12.643		119.4%	*****					
S/DEPTH=.2	12.463		117.3%	*****					
S/DEPTH=.1	12.356		116.1%	*****					
S/DEPTH=.0	12.320		115.7%	*****					

[illegible]

CASE 3=D

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT =	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	.000	338.881	180.347	73.436	10.130	.051	.766	.571	.000
S/DEPTH=1.7	*****	97.3%	89.8%	61.9%	*****	*****	*****	*****	*****
S/DEPTH=1.6	*****	.000							
8/DEPTH=1.5	*****	.000							
S/DEPTH=1.4	*****	.000							
S/DEPTH=1.3	*****	.000							
S/DEPTH=1.2	*****	.000							
8/DEPTH=1.1	*****	.000	179.579	74.144					
S/DEPTH=1.0	*****	.000	90.0%	63.6%	11.089	.241	.672	.488	.000
S/DEPTH=.9	*****	.000	170.018	73.559	*****	*****	*****	*****	.000
S/DEPTH=.8	*****	.000	175.752	83.895	12.859	.632	.495	.329	.000
S/DEPTH=.7	*****	.000	159.093	87.328	*****	*****	*****	*****	.000
S/DEPTH=.6	*****	.000	148.092	90.009	*****	*****	*****	*****	.000
S/DEPTH=.5	*****	.000	135.239	92.067	17.008	1.370	.259	.100	.000
S/DEPTH=.4	*****	.000	126.884	93.610	164.4%	1.517	.229	.067	.000
S/DEPTH=.3	*****	.000	120.227	94.722	149.1%	*****	*****	*****	.000
S/DEPTH=.2	*****	.000	115.719	95.471	138.2%	1.628	.211	.046	.000
S/DEPTH=.1	*****	.000	113.056	95.902	131.0%	1.705	.201	.033	.000
S/DEPTH=.0	*****	.000	112.174	96.045	126.8%	1.750	.195	.026	.000
	*****	.000	88.0%	73.2%	125.5%	1.765	.194	.024	.000
	*****	.000	88.0%	73.2%	125.5%	*****	*****	*****	*****

CASE 3=D

TABLE IV=01MENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	250.083	36.845	138.935	95.848	18.903	1.139	202	284	.001
S/DEPTH=1.7	93.4%	143.2%	110.4%	112.8%	131.5%	*****	*****	*****	*****
S/DEPTH=1.6	100.0%								
S/DEPTH=1.5	270.780								
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	268.637								
S/DEPTH=1.2	100.0%								
S/DEPTH=1.1	256.168								
S/DEPTH=1.0	93.6%								
S/DEPTH=.9	238.139	19.551							
S/DEPTH=.8	93.5%	176.7%							
S/DEPTH=.7	217.442	26.7%							
S/DEPTH=.6	93.5%	108.8%							
S/DEPTH=.5	93.5%	26.7%							
S/DEPTH=.4	217.442	26.7%							
S/DEPTH=.3	93.5%	108.8%							
S/DEPTH=.2	93.5%	26.7%							
S/DEPTH=.1	217.442	26.7%							
S/DEPTH=.0	93.5%	108.8%							
S/DEPTH=.9	153.228	30.704	91.607	83.082	18.031	1.169	158	244	.024
S/DEPTH=.8	93.0%	65.9%	110.6%	110.1%	124.5%	124.5%	1.185	167	.064
S/DEPTH=.7	92.6%	74.0%	111.5%	110.3%	124.3%	124.3%	1.136	115	.080
S/DEPTH=.6	92.5%	75.9%	113.3%	110.6%	124.1%	124.1%	1.041	1079	.081
S/DEPTH=.5	78.572	25.671	38.244	42.774	10.598	10.598	1.022	1054	.074
S/DEPTH=.4	61.769	21.352	29.094	33.764	8.568	8.568	1.027	1037	.062
S/DEPTH=.3	45.781	16.454	20.963	25.054	6.480	6.480	1.026	1024	.048
S/DEPTH=.2	30.259	11.167	13.574	16.574	4.346	4.346	1.019	1015	.032
S/DEPTH=.1	15.051	5.640	6.668	8.248	2.181	2.181	1.010	1007	.016
S/DEPTH=.0	12.0%	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE V
DIMENSIONLESS DRAG FORCE COMPONENT FIELD... DEFINED IN EQUATION (25)

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CASE 3=D

TABLE 1= DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.922	.460	.154	.015	.064	.077	.078	.078	.078
	45.8%	7.1%	205.3%	*****	601.1%	269.1%	11.9%	393.0%	544.3%
SURFACE	.000	242.445	174.736	99.673	15.668	1.182	.298	.142	.000
	*****	95.1%	86.4%	61.0%	262.8%	*****	*****	*****	*****
S/DEPTH=1.7	.000								

S/DEPTH=1.6	.000								

S/DEPTH=1.5	.000								

S/DEPTH=1.4	.000								

S/DEPTH=1.3	.000								

S/DEPTH=1.2	.000								

S/DEPTH=1.1	.000								

S/DEPTH=1.0	.000								

S/DEPTH= .9	.000								

S/DEPTH= .8	.000								

S/DEPTH= .7	.000								

S/DEPTH= .6	.000								

S/DEPTH= .5	.000								

S/DEPTH= .4	.000								

S/DEPTH= .3	.000								

S/DEPTH= .2	.000								

S/DEPTH= .1	.000								

S/DEPTH= .0	.000								

CASE 3=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 .922 45.8%	10.0 .460 205.3%	20.0 .154 205.3%	30.0 .015 *****	50.0 .064 601.1%	75.0 .077 269.1%	100.0 .078 11.9%	130.0 .078 393.0%	180.0 .078 544.3%
SURFACE	600.213	122.239	13.755	.558	.822	1.308	1.356	1.364	1.354
S/DEPTH=1.7	74.3%	21.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.6	451.338	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	353.780	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.4	277.794	100.0%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	210.084	109.867	13.437	.557	.822	1.308	1.356	1.364	1.354
S/DEPTH=1.2	170.735	90.231	11.712	.539	.822	1.308	1.356	1.364	1.354
S/DEPTH=1.1	132.980	71.231	9.919	.500	.822	1.308	1.356	1.364	1.354
S/DEPTH=1.0	102.707	58.596	8.132	.439	.822	1.308	1.356	1.364	1.354
S/DEPTH=.9	78.350	46.075	6.419	.361	.822	1.308	1.356	1.364	1.354
S/DEPTH=.8	58.731	35.441	5.064	.275	.822	1.308	1.356	1.364	1.354
S/DEPTH=.7	42.959	26.494	4.835	.226	.822	1.308	1.356	1.364	1.354
S/DEPTH=.6	30.354	19.064	3.425	.190	.822	1.308	1.356	1.364	1.354
S/DEPTH=.5	20.404	13.006	2.226	.113	.822	1.308	1.356	1.364	1.354
S/DEPTH=.4	12.719	8.204	1.267	.052	.822	1.308	1.356	1.364	1.354
S/DEPTH=.3	7.010	4.563	.568	.013	.822	1.308	1.356	1.364	1.354
S/DEPTH=.2	3.071	2.011	.143	.000	.822	1.308	1.356	1.364	1.354
S/DEPTH=.1	.761	.500	.000	.000	.822	1.308	1.356	1.364	1.354
S/DEPTH=.0	.000	.000	.000	.000	.822	1.308	1.356	1.364	1.354

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

167

CASE 3=0

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.023	.041	.053	.052	.022	.012	.029	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.041	.034	.023	.005	.034	.039	.004	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.002	.014	.006	.000	.002	.002	.002	.002	.002

CASE 3-D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.308 (=19.5%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.154 (=225.7%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.169 (=168.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.342 (=194.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.334 (=195.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.976 (=4%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.575 (=167.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.454 (=221.9%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.120 (=295.5%)

CASE 3=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.031553	STREAM FUNCTION	.000000
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.028948	STREAM FUNCTION	.004628
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.056189	STREAM FUNCTION	.000000
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.043254	STREAM FUNCTION	.017961
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.407134	STREAM FUNCTION	.744697
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.020545	STREAM FUNCTION	.308594

CASE 4aA

8TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .003902 DPT/LO = .020000
 H/DPT = .195117
 L/LO = .358594 PSI/(G*H*T) = -.001206

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.633424e+01 X(2)/(H*T*G) = -.126001e+01
 X(3)/(H*T*G) = -.249362e+02 X(4)/(H*T*G) = -.061943e+03
 X(5)/(H*T*G) = -.789062e+04 X(6)/(H*T*G) = -.120627e+04
 X(7)/(H*T*G) = -.154178e+05 X(8)/(H*T*G) = -.126902e+06

CASE 40A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 30.7%	.722 30.7%	.682 27.8%	.575 18.3%	.431 11.4%	50.0 119.8%	75.0 244.6%	100.0 57.3%	130.0 266 43.8%	180.0 278 79.8%
SURFACE	13.481	12.697	10.620	7.868	2.545	-1.675	3.642	4.704	4.903	
S/DEPTH=1.1	32.0%	28.9%	19.0%	8.7%	130.4%	240.2%	57.0%	46.0%	82.4%	
S/DEPTH=1.0	31.0%	28.1%	18.7%	7.786	125.5%	237.4%	56.9%	45.9%	82.5%	
S/DEPTH=.9	29.4%	26.7%	17.6%	7.694	113.8%	217.4%	53.3%	44.676	84.890	
S/DEPTH=.8	28.0%	25.4%	16.7%	7.609	104.6%	207.2%	50.5%	44.49%	80.9%	
S/DEPTH=.7	26.6%	24.2%	15.8%	7.534	97.1%	193.7%	47.7%	44.659	84.882	
S/DEPTH=.6	25.1%	23.1%	15.1%	7.467	91.2%	182.1%	45.2%	44.604	79.4%	
S/DEPTH=.5	23.7%	21.3%	14.4%	7.410	86.5%	176.9%	43.3%	44.632	78.2%	
S/DEPTH=.4	22.9%	20.7%	13.8%	7.363	82.8%	171.1%	42.7%	44.621	77.1%	
S/DEPTH=.3	22.4%	20.1%	13.4%	7.326	80.1%	169.2%	42.1%	44.613	76.3%	
S/DEPTH=.2	22.0%	19.8%	13.0%	7.299	78.2%	167.9%	41.7%	44.608	75.6%	
S/DEPTH=.1	21.7%	19.5%	12.7%	7.283	77.1%	166.2%	41.5%	44.604	75.1%	
S/DEPTH=.0	21.6%	19.5%	12.5%	7.278	76.7%	165.2%	41.3%	44.603	74.9%	
				1.0%	76.7%	164.2%	41.2%	44.602	74.8%	

CASE 4=A

TABLE 11=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD.....DEFINED IN EQUATION (22)									
THETA ETA/HEIGHT=	10.0 .722 30.7%	20.0 .575 18.3%	30.0 .431 9.4%	40.0 .300 7.5%	50.0 .146 24.6%	60.0 .089 57.3%	70.0 .050 100.0	80.0 .026 130.0	90.0 .000 180.0
SURFACE	2.417	4.170	4.968	4.360	2.419	1.098	.259	.618,8%	.000
S/DEPTH=.1	75.2%	71.8%	65.8%	41.2%	28.6%	176.5%	.259	.618,8%	.000
S/DEPTH=.2	2.322	4.110	4.968	4.360	2.419	1.098	.259	.618,8%	.000
S/DEPTH=.3	74.2%	71.4%	65.8%	41.2%	28.6%	176.5%	.259	.618,8%	.000
S/DEPTH=.4	2.049	3.638	4.499	4.228	2.224	1.036	.248	.630,3%	.000
S/DEPTH=.5	73.4%	70.5%	65.1%	43.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=.6	1.795	3.196	3.970	3.773	2.224	1.036	.248	.630,3%	.000
S/DEPTH=.7	72.8%	69.9%	64.6%	42.9%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=.8	1.558	2.781	3.467	3.328	2.224	1.036	.248	.630,3%	.000
S/DEPTH=.9	72.2%	69.4%	64.1%	42.6%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=1.0	1.335	2.388	2.997	2.892	2.224	1.036	.248	.630,3%	.000
S/DEPTH=1.1	71.7%	68.9%	63.6%	42.4%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=1.2	1.124	2.013	2.526	2.464	2.224	1.036	.248	.630,3%	.000
S/DEPTH=1.3	71.3%	68.5%	63.2%	42.3%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=1.4	1.022	1.855	2.081	2.042	2.224	1.036	.248	.630,3%	.000
S/DEPTH=1.5	70.9%	68.1%	62.9%	42.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=1.6	1.029	1.809	1.969	1.927	2.224	1.036	.248	.630,3%	.000
S/DEPTH=1.7	70.6%	67.8%	62.6%	42.0%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=1.8	1.021	1.793	1.928	1.886	2.224	1.036	.248	.630,3%	.000
S/DEPTH=1.9	70.4%	67.6%	62.4%	41.8%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=2.0	1.018	1.788	1.914	1.879	2.224	1.036	.248	.630,3%	.000
S/DEPTH=2.1	70.2%	67.4%	62.3%	41.8%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=2.2	1.015	1.783	1.910	1.875	2.224	1.036	.248	.630,3%	.000
S/DEPTH=2.3	70.0%	67.2%	62.2%	41.7%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=2.4	1.012	1.778	1.906	1.871	2.224	1.036	.248	.630,3%	.000
S/DEPTH=2.5	69.8%	67.0%	62.0%	41.6%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=2.6	1.009	1.773	1.902	1.867	2.224	1.036	.248	.630,3%	.000
S/DEPTH=2.7	69.6%	66.8%	61.8%	41.5%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=2.8	1.006	1.768	1.898	1.862	2.224	1.036	.248	.630,3%	.000
S/DEPTH=2.9	69.4%	66.6%	61.6%	41.4%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=3.0	1.003	1.763	1.894	1.858	2.224	1.036	.248	.630,3%	.000
S/DEPTH=3.1	69.2%	66.4%	61.4%	41.3%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=3.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=3.3	69.0%	66.2%	61.2%	41.2%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=3.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=3.5	68.8%	66.0%	61.0%	41.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=3.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=3.7	68.6%	65.8%	60.8%	41.0%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=3.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=3.9	68.4%	65.6%	60.6%	40.9%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=4.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=4.1	68.2%	65.4%	60.4%	40.8%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=4.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=4.3	68.0%	65.2%	60.2%	40.7%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=4.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=4.5	67.8%	65.0%	60.0%	40.6%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=4.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=4.7	67.6%	64.8%	59.8%	40.5%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=4.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=4.9	67.4%	64.6%	59.6%	40.4%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=5.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=5.1	67.2%	64.4%	59.4%	40.3%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=5.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=5.3	67.0%	64.2%	59.2%	40.2%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=5.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=5.5	66.8%	64.0%	59.0%	40.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=5.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=5.7	66.6%	63.8%	58.8%	40.0%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=5.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=5.9	66.4%	63.6%	58.6%	39.9%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=6.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=6.1	66.2%	63.4%	58.4%	39.8%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=6.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=6.3	66.0%	63.2%	58.2%	39.7%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=6.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=6.5	65.8%	63.0%	58.0%	39.6%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=6.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=6.7	65.6%	62.8%	57.8%	39.5%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=6.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=6.9	65.4%	62.6%	57.6%	39.4%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=7.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=7.1	65.2%	62.4%	57.4%	39.3%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=7.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=7.3	65.0%	62.2%	57.2%	39.2%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=7.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=7.5	64.8%	62.0%	57.0%	39.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=7.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=7.7	64.6%	61.8%	56.8%	39.0%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=7.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=7.9	64.4%	61.6%	56.6%	38.9%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=8.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=8.1	64.2%	61.4%	56.4%	38.8%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=8.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=8.3	64.0%	61.2%	56.2%	38.7%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=8.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=8.5	63.8%	61.0%	56.0%	38.6%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=8.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=8.7	63.6%	60.8%	55.8%	38.5%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=8.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=8.9	63.4%	60.6%	55.6%	38.4%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=9.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=9.1	63.2%	60.4%	55.4%	38.3%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=9.2	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=9.3	63.0%	60.2%	55.2%	38.2%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=9.4	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=9.5	62.8%	60.0%	55.0%	38.1%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=9.6	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=9.7	62.6%	59.8%	54.8%	38.0%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=9.8	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000
S/DEPTH=9.9	62.4%	59.6%	54.6%	37.9%	22.2%	167.3%	.248	.630,3%	.000
S/DEPTH=10.0	1.000	1.758	1.890	1.854	2.224	1.036	.248	.630,3%	.000

CASE 4=A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
ETA/HEIGHT =	30.7%	27.6%	25.6%	23.7%	21.8%	19.9%	18.0%	16.1%	14.2%	12.3%	10.4%	8.5%	6.6%	4.7%	2.8%	0.9%	-1.0%	-2.9%	-4.8%
SURFACE	0.000	47.081	80.478	94.507	79.770	42.279	18.683	4.359	0.000										
S/DEPTH=1.1	0.000	80.6%	77.6%	71.9%	46.1%	27.3%	12.03%	0.000	0.000										
S/DEPTH=1.0	0.000	45.831	79.769																
S/DEPTH=1.0	0.000	80.1%	77.4%																
S/DEPTH=1.0	0.000	42.398	74.368																
S/DEPTH=1.0	0.000	78.8%	76.1%	90.059	79.266														
S/DEPTH=1.0	0.000	39.445	69.690	85.375	77.580	42.895	19.152	4.472	0.000										
S/DEPTH=1.0	0.000	77.5%	74.8%	69.7%	47.8%	23.5%	13.4%	0.000	0.000										
S/DEPTH=1.0	0.000	36.919	65.667	81.303	76.033	43.526	19.857	4.691	0.000										
S/DEPTH=1.0	0.000	76.2%	73.5%	68.5%	47.3%	20.4%	10.0%	0.000	0.000										
S/DEPTH=1.0	0.000	34.780	62.240	77.802	70.640	44.048	20.473	4.886	0.000										
S/DEPTH=1.0	0.000	75.0%	72.4%	67.5%	46.9%	17.8%	9.0%	0.000	0.000										
S/DEPTH=1.0	0.000	33.990	59.361	74.836	73.413	44.473	21.003	5.057	0.000										
S/DEPTH=1.0	0.000	73.9%	71.3%	66.5%	46.5%	15.7%	8.1%	0.000	0.000										
S/DEPTH=1.0	0.000	31.522	56.989	72.375	72.362	44.813	21.448	5.202	0.000										
S/DEPTH=1.0	0.000	72.9%	70.3%	65.6%	46.1%	14.0%	12.9%	0.000	0.000										
S/DEPTH=1.0	0.000	30.351	55.092	70.394	71.494	45.078	21.610	5.322	0.000										
S/DEPTH=1.0	0.000	72.0%	69.5%	64.9%	45.8%	12.6%	14.7%	0.000	0.000										
S/DEPTH=1.0	0.000	29.458	53.642	68.874	70.814	45.276	22.090	5.415	0.000										
S/DEPTH=1.0	0.000	71.3%	68.9%	64.3%	45.5%	11.6%	13.0%	0.000	0.000										
S/DEPTH=1.0	0.000	28.631	52.620	67.799	70.326	45.413	22.289	5.482	0.000										
S/DEPTH=1.0	0.000	70.8%	68.4%	63.8%	45.3%	10.9%	14.1%	0.000	0.000										
S/DEPTH=1.0	0.000	28.458	52.013	67.158	70.032	45.494	22.408	5.522	0.000										
S/DEPTH=1.0	0.000	70.5%	68.1%	63.6%	45.2%	10.5%	13.8%	0.000	0.000										
S/DEPTH=1.0	0.000	28.334	51.811	66.946	69.934	45.520	22.448	5.536	0.000										
S/DEPTH=1.0	0.000	70.4%	68.0%	63.5%	45.2%	10.3%	13.7%	0.000	0.000										

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA ETA/HEIGHT	0 30.7%	10.0 27.6%	20.0 18.3%	30.0 14.6%	40.0 11.98%	50.0 9.46%	60.0 7.50%	70.0 6.08%	80.0 5.20%
SURFACE	78.129	67.388	40.921	11.017	25.221	25.492	13.853	3.890	1.798
S/DEPTH=1.1	75.0%	71.6%	55.8%	48.7%	145.0%	112.5%	61.5%	*****	*****
S/DEPTH=1.0	74.517	64.948	40.456	10.911	24.156	23.148	13.027	3.719	1.723
S/DEPTH=.9	73.8%	70.5%	55.3%	38.1%	144.2%	112.1%	62.8%	*****	*****
S/DEPTH=.8	66.071	57.827	36.633	28.0%	20.679	20.374	11.637	3.350	1.554
S/DEPTH=.7	73.02%	69.9%	54.9%	20.505	146.0%	112.2%	63.3%	*****	*****
S/DEPTH=.6	58.132	51.065	32.827	16.8%	17.556	17.667	10.225	2.966	1.377
S/DEPTH=.5	72.6%	69.4%	54.8%	14.85%	148.5%	112.4%	63.7%	*****	*****
S/DEPTH=.4	50.653	44.622	29.051	12.1%	14.738	15.022	8.795	2.568	1.193
S/DEPTH=.3	72.2%	68.9%	54.7%	10.990	150.4%	112.5%	64.0%	*****	*****
S/DEPTH=.2	43.515	38.456	25.310	16.8%	12.17	12.431	7.349	2.158	1.003
S/DEPTH=.1	71.7%	68.5%	54.6%	12.5%	152.2%	112.6%	64.3%	*****	*****
S/DEPTH=.0	36.722	32.530	21.607	9.818	9.831	9.887	5.893	1.738	.809
S/DEPTH=.9	71.3%	68.2%	54.5%	153.9%	155.2%	112.7%	64.5%	*****	*****
S/DEPTH=.8	30.201	26.806	17.941	5.66	7.661	7.381	4.427	1.311	.610
S/DEPTH=.7	71.0%	67.9%	54.4%	7.1%	15.2%	11.2%	6.47%	*****	*****
S/DEPTH=.6	23.901	21.248	14.308	4.238	5.628	4.904	2.955	.877	.408
S/DEPTH=.5	70.7%	67.6%	54.3%	15.64%	3.696	112.9%	64.7%	*****	*****
S/DEPTH=.4	17.775	15.622	10.704	2.855	*****	2.447	1.478	.440	.205
S/DEPTH=.3	70.5%	67.4%	54.2%	1.436	1.831	*****	*****	*****	*****
S/DEPTH=.2	11.779	10.994	7.123	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	70.3%	67.3%	54.1%	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	55.868	55.231	35.558	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	70.2%	67.2%	54.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4=A

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.722	.682	.575	.431	.304	.146	.089	.266	.278
	30.7%	27.8%	18.3%	9.4%	119.8%	244.6%	57.3%	43.8%	79.8%
SURFACE	156.300	140.742	102.846	60.692	8.778	=1.565	=11.149	=20.386	=22.446
S/DEPTH=.1	46.6%	42.6%	28.7%	=1.8%	=279.2%	*****	80.0%	=99.5%	=200.0%
S/DEPTH=.2	148.988	135.474	101.480						
S/DEPTH=.3	44.0%	40.3%	27.8%						
S/DEPTH=.4	131.971	120.226	90.558	55.538	8.591	=1.348	=10.359	=19.325	=21.347
S/DEPTH=.5	42.9%	39.2%	26.5%	=1.8%	=262.5%	*****	80.4%	=104.3%	=215.8%
S/DEPTH=.6	116.055	105.899	80.153	49.539	7.897	*****	80.4%	=104.3%	=215.8%
S/DEPTH=.7	42.0%	38.4%	25.9%	=1.8%	=252.0%	=1.119	=9.087	=17.131	=18.952
S/DEPTH=.8	101.071	92.357	70.198	43.696	7.149	*****	80.5%	=103.3%	=213.2%
S/DEPTH=.9	41.5%	37.7%	25.3%	=1.9%	*****	*****	80.5%	=103.3%	=213.2%
S/DEPTH=1.0	86.873	79.480	60.628	37.914	6.355	=.921	=7.858	=14.952	=16.565
S/DEPTH=1.1	40.6%	37.0%	24.9%	=1.9%	*****	*****	80.2%	=102.5%	=211.2%
S/DEPTH=1.2	73.532	67.160	51.387	32.340	5.520	=.749	=6.867	=12.789	=14.185
S/DEPTH=1.3	40.0%	36.5%	24.4%	=2.0%	*****	*****	*****	=101.8%	=210.0%
S/DEPTH=1.4	60.330	55.300	42.419	26.808	4.651	=.597	=5.508	=10.638	=11.812
S/DEPTH=1.5	39.6%	36.0%	24.1%	=2.0%	*****	*****	*****	=101.2%	=208.8%
S/DEPTH=1.6	47.764	43.811	33.674	21.353	3.753	=.460	=4.375	=8.498	=9.493
S/DEPTH=1.7	39.2%	35.7%	23.8%	=2.1%	*****	*****	*****	=100.7%	=207.8%
S/DEPTH=1.8	55.535	52.612	39.105	15.991	2.834	=.335	=3.263	=6.566	=7.079
S/DEPTH=1.9	38.9%	35.4%	23.6%	=2.1%	*****	*****	*****	*****	*****
S/DEPTH=2.0	23.555	21.625	16.665	10.615	1.898	=.219	=2.167	=4.240	=4.717
S/DEPTH=2.1	38.6%	35.2%	23.4%	=2.1%	*****	*****	*****	*****	*****
S/DEPTH=2.2	11.737	10.778	8.311	5.300	.952	=.108	=1.081	=2.119	=2.358
S/DEPTH=2.3	38.5%	35.1%	23.3%	*****	*****	*****	*****	*****	*****
S/DEPTH=2.4	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=2.5	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4=A

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (2a)

THETA =	0.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.722	.682	.575	.531	.46	.089	.204	.266	.278
	30.7%	27.8%	18.3%	8.4%	119.4%	24.6%	57.3%	43.8%	79.8%
SURFACE	.000	38.728	67.673	82.161	75.384	43.754	20.365	4.872	.000
S/DEPTH=1.1	*****	75.5%	72.4%	66.8%	44.5%	20.6%	16.3%	611.4%	*****
S/DEPTH=1.0	*****	37.193	66.699	74.400	73.115	40.239	19.224	4.660	.000
S/DEPTH=.9	*****	74.5%	72.0%	65.8%	46.1%	19.5%	15.4%	622.8%	*****
S/DEPTH=.8	*****	32.785	58.998	66.3%	65.2%	35.917	17.273	4.202	.000
S/DEPTH=.7	*****	73.8%	71.2%	65.6%	45.9%	13.6%	150.9%	610.1%	*****
S/DEPTH=.6	*****	28.697	51.801	64.9%	50.062	31.537	15.256	3.723	.000
S/DEPTH=.5	*****	73.82%	70.8%	65.2%	45.7%	12.8%	147.7%	*****	*****
S/DEPTH=.4	*****	24.882	45.039	57.305	42.661	27.110	13.181	3.225	.000
S/DEPTH=.3	*****	72.6%	70.0%	64.5%	45.6%	12.2%	145.1%	*****	*****
S/DEPTH=.2	*****	21.300	38.648	54.370	35.373	22.845	11.058	2.712	.000
S/DEPTH=.1	*****	72.1%	69.6%	64.2%	45.4%	11.6%	142.9%	*****	*****
	.000	17.915	32.572	41.727	28.182	18.150	8.894	2.186	.000
	*****	71.8%	69.1%	63.9%	45.3%	11.2%	141.1%	*****	*****
	*****	14.692	26.759	34.370	21.068	13.632	6.699	1.649	.000
	*****	71.3%	68.8%	63.7%	45.2%	10.9%	139.7%	*****	*****
	*****	11.600	21.159	27.236	14.013	9.097	4.479	1.104	.000
	*****	70.9%	68.5%	63.6%	45.2%	10.6%	138.8%	*****	*****
	.000	8.612	15.726	20.276	6.702	4.551	2.243	.553	.000
	*****	70.7%	68.2%	63.5%	45.1%	10.5%	*****	*****	*****
	*****	5.700	10.416	13.446	0.00	.000	.000	.000	.000
	*****	70.5%	68.1%	63.4%	*****	*****	*****	*****	*****
	.000	2.838	5.188	6.702	*****	*****	*****	*****	*****
	*****	*****	68.0%	63.3%	*****	*****	*****	*****	*****
	*****	*****	.000	.000	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

SURFACE	THETA = 0		THETA = 10.0		THETA = 20.0		THETA = 30.0		THETA = 50.0		THETA = 75.0		THETA = 100.0		THETA = 130.0		THETA = 180.0	
	ETA/HEIGHT= 30.7%		ETA/HEIGHT= 27.8%		ETA/HEIGHT= 26.82		ETA/HEIGHT= 25.75		ETA/HEIGHT= 24.31		ETA/HEIGHT= 22.46		ETA/HEIGHT= 20.089		ETA/HEIGHT= 17.204		ETA/HEIGHT= 12.278	
	95.858	85.247	85.247	60.179	33.780	4.248	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	51.0%	46.7%	46.7%	31.8%	1.7%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	87.664	77.364	77.364	58.668	17.742	2.764	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	46.4%	42.7%	42.7%	30.1%	1.8%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	69.787	63.346	63.346	47.195	13.442	2.169	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	44.8%	41.0%	41.0%	28.0%	1.6%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .9	58.658	49.728	49.728	37.307	9.786	1.626	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	43.6%	39.9%	39.9%	27.1%	1.9%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .8	41.914	36.212	36.212	28.841	6.742	1.148	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	42.6%	38.9%	38.9%	26.3%	1.7%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .7	31.260	28.549	28.549	21.661	13.442	2.169	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	41.6%	38.0%	38.0%	25.6%	1.6%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	22.453	20.537	20.537	15.652	9.786	1.626	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	40.8%	37.2%	37.2%	25.0%	1.9%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	15.298	14.010	14.010	10.717	6.742	1.148	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	40.1%	36.5%	36.5%	24.5%	2.0%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	9.640	8.837	8.837	6.781	4.287	.745	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	39.5%	36.0%	36.0%	24.0%	2.4%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	3.358	2.915	2.915	3.780	2.399	.423	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	39.0%	35.6%	35.6%	23.6%	1.6%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	2.361	2.167	2.167	1.669	1.063	.189	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	38.0%	34.8%	34.8%	23.1%	1.6%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.587	.539	.539	.416	.265	.048	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	37.0%	34.0%	34.0%	22.0%	1.6%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VIII—DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

SURFACE	.000	23.879	40.504	47.184	39.646	21.246	9.490	2.221	.000
S/DEPTH=1.1	*****	76.0%	74.5%	68.2%	43.2%	28.8%	180.6%	*****	*****
S/DEPTH=1.0	*****	76.2%	73.8%						
S/DEPTH=.9	*****	75.2%	72.5%	39.095	37.344				
S/DEPTH=.8	*****	74.4%	71.7%	67.6%	46.8%	17.937	8.429	2.025	.000
S/DEPTH=.7	*****	73.6%	71.0%	66.8%	46.5%	16.6%	163.34%	*****	*****
S/DEPTH=.6	*****	72.9%	70.3%	65.5%	46.3%	15.22%	157.87%	1.635	.000
S/DEPTH=.5	*****	71.7%	69.7%	65.0%	46.1%	14.0%	152.86%	1.276	.000
S/DEPTH=.4	*****	71.2%	68.7%	64.1%	45.8%	13.0%	148.86%	.953	.000
S/DEPTH=.3	*****	71.2%	68.7%	64.1%	45.6%	12.12%	145.4%	.671	.000
S/DEPTH=.2	*****	71.2%	68.7%	64.1%	45.4%	11.6%	144.54%	.434	.000
S/DEPTH=.1	*****	71.2%	68.7%	64.1%	45.3%	11.6%	144.54%	.434	.000
S/DEPTH=.0	*****	71.2%	68.7%	64.1%	45.3%	11.6%	144.54%	.434	.000

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TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA = ETA/HEIGHT=	0 30.7%	10.0 27.0%	20.0 18.3%	30.0 14.3%	50.0 7.146	75.0 244.6%	100.0 57.3%	130.0 43.8%	180.0 79.8%
SURFACE	1.444	1.364	1.149	.862	.293	.179	.407	.533	.557
S/DEPTH=1.1	31.9%	28.9%	19.4%	.6%	120.5%	252.6%	61.1%	44.2%	82.5%
S/DEPTH=1.0	31.0%	28.2%	19.2%	.9%	.297				
S/DEPTH=.9	29.6%	26.2%	18.3%	.856	115.6%				
S/DEPTH=.8	28.3%	25.8%	17.6%	.850	.311	166	402	532	556
S/DEPTH=.7	27.1%	24.7%	16.9%	1.2%	103.7%	262.9%	61.3%	44.0%	82.6%
S/DEPTH=.6	26.1%	23.7%	16.3%	1.4%	.323	276.6%	61.3%	42.9%	80.8%
S/DEPTH=.5	25.1%	22.9%	15.7%	1.5%	.334	290.8%	61.2%	41.8%	79.3%
S/DEPTH=.4	24.3%	22.2%	15.2%	1.6%	.342	305.2%	61.2%	41.1%	78.0%
S/DEPTH=.3	23.7%	21.6%	14.8%	1.7%	.349	319.1%	61.1%	40.4%	76.8%
S/DEPTH=.2	23.0%	21.1%	14.5%	1.8%	.355	332.0%	61.1%	40.3%	75.9%
S/DEPTH=.1	22.5%	20.8%	14.3%	1.8%	.359	343.1%	61.1%	39.8%	75.2%
S/DEPTH=.0	22.1%	20.4%	14.0%	1.8%	.362	351.8%	61.0%	39.3%	74.7%
	21.8%	20.1%	13.7%	1.8%	.364	357.2%	61.0%	38.8%	74.4%
	21.5%	19.8%	13.5%	1.8%	.364	359.1%	61.0%	38.7%	74.3%

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.001	.003	.003	.004	.002	.001	.003	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(36)									
SURFACE	.008	.008	.007	.004	.001	.007	.008	.001	.008
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.359 (#3.2%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.433 (#15.6%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.448 (#12.5%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.860 (#14.0%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.835 (#15.1%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.948 (#1.0%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.891 (#12.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.211 (#17.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.376 (#21.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .002561          STREAM FUNCTION          .000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .005760          STREAM FUNCTION          .000111

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .003672          STREAM FUNCTION          .000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .008448          STREAM FUNCTION          .000183

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR          .102996          STREAM FUNCTION          .146703

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR          .012115          STREAM FUNCTION          .048524

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10TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

HT = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .007772 DPT/LO = .020000

H/DPT = .388580

L/LO = .379687 PSI/(G*H*T) = -.001938

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.508835e01	X(2)/(H*T*G) =	-.146785e01
X(3)/(H*T*G) =	-.445503e02	X(4)/(H*T*G) =	-.129346e02
X(5)/(H*T*G) =	-.352846e03	X(6)/(H*T*G) =	-.887575e04
X(7)/(H*T*G) =	-.199291e04	X(8)/(H*T*G) =	-.369381e05
X(9)/(H*T*G) =	-.386228e06	X(10)/(H*T*G) =	-.100394e06

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TABLE 1-DIMENSIONLESS		HORIZONTAL		VELOCITY		COMPONENT FIELD...DEFINED IN EQUATION (21)			
THETA =		0		20.0		30.0		50.0	
ETA/HEIGHT =		8.10		.715		.294		.010	
		38.3%		31.1%		47.1%		*****	
SURFACE		15.839		13.833		9.560		5.371	
S/DEPTH=1.3		41.3%		33.9%		8.8%		49.2%	
S/DEPTH=1.2		100.0%		13.298					
S/DEPTH=1.1		37.2%		31.2%		9.324		5.383	
S/DEPTH=1.0		34.6%		28.8%		7.6%		47.5%	
S/DEPTH= .9		32.2%		26.6%		6.6%		43.6%	
S/DEPTH= .8		30.0%		24.6%		5.5%		40.5%	
S/DEPTH= .7		27.9%		22.7%		4.6%		38.1%	
S/DEPTH= .6		24.3%		19.5%		3.7%		36.2%	
S/DEPTH= .5		22.8%		18.2%		2.9%		34.8%	
S/DEPTH= .4		21.6%		17.1%		2.3%		33.4%	
S/DEPTH= .3		20.6%		16.2%		1.7%		32.5%	
S/DEPTH= .2		20.0%		15.6%		1.2%		31.8%	
S/DEPTH= .1		19.5%		15.2%		.9%		31.3%	
S/DEPTH= .0		19.4%		15.1%		.6%		31.1%	

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE IV DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD, . . . DEFINED IN EQUATION (24)

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TABLE	V	DIMENSIONLESS	DRAW	FORCE	COMPONENT	FIELD	...DEFINED	IN	EQUATION	(25)
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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.0	.715	.506	.294	.010	.131	.174	.190
	36.3%	31.1%	7.2%	47.1%	*****	198.4%	50.1%	103.6%
SURFACE	.000	51.609	69.185	61.672	31.234	9.874	2.787	.347
S/DEPTH=1.3	*****	89.0%	84.0%	74.0%	23.8%	184.3%	*****	*****
S/DEPTH=1.2	*****	.000	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	43.010	55.356	59.771	30.991	9.034	2.637	.332
S/DEPTH=1.0	*****	86.9%	82.8%	76.4%	39.9%	125.9%	*****	*****
S/DEPTH=.9	*****	33.743	43.411	47.690	25.247	7.361	2.174	.275
S/DEPTH=.8	*****	85.8%	82.0%	75.1%	40.87%	117.6%	*****	*****
S/DEPTH=.7	*****	26.167	33.510	37.393	20.028	5.786	1.726	.220
S/DEPTH=.6	*****	85.8%	81.3%	74.5%	41.3%	111.1%	*****	*****
S/DEPTH=.5	*****	19.992	25.345	28.683	15.376	4.345	1.308	.167
S/DEPTH=.4	*****	84.2%	80.6%	71.8%	41.8%	105.6%	*****	*****
S/DEPTH=.3	*****	14.980	18.603	21.384	11.316	3.073	.931	.120
S/DEPTH=.2	*****	83.5%	79.9%	73.0%	7.866	*****	*****	*****
S/DEPTH=.1	*****	10.338	13.250	15.348	5.037	1.995	.608	.078
S/DEPTH=.0	*****	82.8%	79.3%	73.5%	42.1%	1.135	.348	.045
	*****	7.709	8.937	10.447	7.866	*****	*****	*****
	*****	81.6%	78.8%	73.1%	42.4%	*****	*****	*****
	*****	3.211	5.583	6.576	5.037	*****	*****	*****
	*****	78.4%	75.7%	72.7%	42.7%	*****	*****	*****
	*****	1.765	3.082	3.652	2.834	1.135	.348	.045
	*****	*****	*****	72.4%	*****	*****	*****	*****
	*****	.772	1.351	1.608	1.260	.508	.156	.020
	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.191	.335	.400	.315	.128	.039	.005
	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	810	.715	.506	.294	.010	.0131	.0174	.0188	.0190
	38.3%	31.1%	7.2%	47.1%	*****	198.4%	50.1%	103.6%	163.6%
SURFACE	1.627	1.434	1.014	.590	.020	.264	.348	.377	.380
S/DEPTH#1.0	40.7%	33.6%	10.1%	43.5%	*****	208.3%	59.2%	104.1%	171.1%
S/DEPTH#1.0	1.615								
S/DEPTH#1.0	100.0%								
S/DEPTH#1.0	1.541	1.392							
S/DEPTH#1.0	37.4%	31.6%							
S/DEPTH#1.0	1.475	1.342	1.003	.593	.021	.258	.347	.377	.380
S/DEPTH#1.0	35.3%	29.9%	9.9%	41.8%	*****	210.5%	59.9%	104.2%	171.1%
S/DEPTH#1.0	1.417	1.297	.990	.611	.021	.246	.343	.376	.380
S/DEPTH#1.0	33.4%	28.2%	9.7%	36.2%	*****	215.5%	60.6%	103.1%	171.0%
S/DEPTH#1.0	1.365	1.257	.977	.624	.049	.236	.340	.376	.380
S/DEPTH#1.0	31.6%	26.7%	9.5%	32.0%	*****	220.4%	61.2%	100.9%	168.1%
S/DEPTH#1.0	1.320	1.222	.965	.635	.074	.226	.337	.375	.380
S/DEPTH#1.0	29.9%	25.3%	9.1%	28.6%	*****	225.0%	61.8%	99.1%	165.6%
S/DEPTH#1.0	1.281	1.191	.954	.643	.095	.219	.335	.375	.380
S/DEPTH#1.0	28.3%	24.0%	8.8%	26.0%	*****	229.2%	62.2%	97.5%	163.5%
S/DEPTH#1.0	1.248	1.165	.944	.650	.113	.212	.333	.375	.380
S/DEPTH#1.0	26.9%	22.8%	8.4%	24.0%	*****	232.9%	62.6%	96.2%	161.8%
S/DEPTH#1.0	1.220	1.143	.935	.654	.128	.207	.331	.375	.380
S/DEPTH#1.0	25.7%	21.6%	8.1%	22.4%	*****	235.9%	62.9%	95.2%	160.5%
S/DEPTH#1.0	1.198	1.125	.927	.658	.140	.204	.330	.374	.380
S/DEPTH#1.0	24.7%	20.9%	7.8%	21.2%	*****	238.2%	63.1%	94.5%	159.6%
S/DEPTH#1.0	1.181	1.111	.922	.660	.149	.202	.329	.374	.379
S/DEPTH#1.0	23.9%	20.2%	7.6%	20.3%	*****	239.6%	63.2%	94.1%	159.0%
S/DEPTH#1.0	1.169	1.102	.917	.662	.155	.201	.329	.374	.379
S/DEPTH#1.0	23.4%	19.7%	7.4%	19.7%	*****	240.1%	63.3%	94.0%	158.8%
S/DEPTH#1.0	1.161	1.096	.915	.663	.159	.200	.328	.373	.378
S/DEPTH#1.0	23.0%	19.5%	7.3%	19.3%	*****				
S/DEPTH#1.0	1.159	1.094	.914	.663	.160				
S/DEPTH#1.0	22.9%	19.4%	7.3%	19.2%	*****				

CASE 4=B

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.006	.012	.015	.016	.007	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.018	.017	.014	.009	.002	.014	.016	.001	.015
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.003	.002	.001	.001	.001	.000	.000	.000	.000

CASE 4-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.380 (= 8.6%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.346 (= 44.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.376 (= 34.4%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.722 (= 39.3%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.682 (= 41.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.944 (= 1.5%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.749 (= 33.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.962 (= 47.7%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.280 (= 63.0%)

CASE 40B

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.010455	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.011583	STREAM FUNCTION	.000845
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.016860	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.017545	STREAM FUNCTION	.003140
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	LINEAR	.207956	STREAM FUNCTION	.323998
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	LINEAR	.023367	STREAM FUNCTION	.153634

CASE 4=C

12TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .011678 DPT/LO = .020000
H/DPT = .583909
L/LO = .401172 PSI/(G*H*T) = .002233

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	.410159e01	X(2)/(H*T*G) =	.136907e01
X(3)/(H*T*G) =	.502967e02	X(4)/(H*T*G) =	.181193e02
X(5)/(H*T*G) =	.627541e03	X(6)/(H*T*G) =	.207353e03
X(7)/(H*T*G) =	.648095e04	X(8)/(H*T*G) =	.189477e04
X(9)/(H*T*G) =	.510130e05	X(10)/(H*T*G) =	.277270e05
X(11)/(H*T*G) =	.797584e06	X(12)/(H*T*G) =	.000000

CASE 4=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	41.8%	.858	.667	.383	.173	.041	.119	.141	.142
		26.1%	22.8%	150.12%	*****	208.4%	36.5%	171.3%	253.1%
SURFACE	18.058	13.533	7.316	3.128	.781	1.993	2.254	2.319	2.328
S/DEPTH=1.5	47.8%	31.4%	20.8%	159.5%	*****	218.7%	30.7%	191.5%	276.5%
S/DEPTH=1.4	100.0%								
S/DEPTH=1.3	100.0%								
S/DEPTH=1.2	18.5%	12.813	7.300	3.130					
S/DEPTH=1.1	14.2%	27.6%	19.7%	12.22					
S/DEPTH=1.0	31.4%	21.3%	19.3%	153.6%					
	12.576	10.924	7.134	3.341					
	28.1%	18.4%	19.2%	134.5%					
S/DEPTH= .9	11.908	10.449	7.042	3.513	.631	1.977	2.252	2.319	2.328
S/DEPTH= .8	24.9%	13.7%	19.3%	120.4%	*****	217.0%	31.1%	100.0%	100.0%
S/DEPTH= .7	22.0%	13.2%	19.6%	109.8%	.455	218.7%	31.5%	191.3%	276.5%
S/DEPTH= .6	10.461	9.393	6.787	3.848	.172	220.4%	31.9%	189.1%	275.9%
S/DEPTH= .5	17.0%	9.150	6.718	3.916	.064	221.9%	32.2%	186.6%	272.1%
S/DEPTH= .4	14.9%	8.955	6.660	3.968	.024	223.4%	32.5%	184.6%	270.0%
S/DEPTH= .3	13.2%	8.805	6.613	4.006	.092	224.8%	32.7%	182.9%	267.8%
S/DEPTH= .2	11.8%	8.700	6.580	4.032	.140	225.6%	32.8%	181.6%	266.1%
S/DEPTH= .1	10.8%	8.637	6.559	4.047	.169	226.4%	33.0%	180.7%	264.8%
S/DEPTH= .0	10.2%	8.428	6.553	4.052	.178	226.9%	33.0%	180.2%	264.1%
	10.0%	8.428	6.553	4.052	.178	227.0%	33.0%	180.0%	263.9%

CASE 4=C

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.858	.667	.383	.173	.041	.119	.137	.141	.142
	41.8%	26.1%	22.8%	150.2%	*****	208.4%	36.5%	171.3%	253.1%
SURFACE	.000	6.448	7.138	5.522	2.200	.531	.101	.009	.000
S/DEPTH=1.5	*****	89.0%	80.6%	64.0%	30.9%	516.3%	*****	*****	*****
S/DEPTH=1.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE II=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)								
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0
ZETA/HEIGHT=	.058	.667	.383	.173	*****	.119	.137	.141
	41.8%	26.1%	22.8%	150.2%	*****	208.4%	36.5%	171.3%

SURFACE	.000	147.890	148.618	105.769	36.864	8.806	.891	.128	=.000
S/DEPTH=1.5	*****	94.8%	89.7%	78.4%	=.19%	=486.3%	*****	*****	*****
S/DEPTH=1.4	*****								
S/DEPTH=1.4	*****								
S/DEPTH=1.3	*****	129.804							
S/DEPTH=1.3	*****	94.1%							
S/DEPTH=1.2	*****	112.669	145.200						
S/DEPTH=1.1	*****	93.3%	89.6%						
S/DEPTH=1.1	*****	98.344	131.698	105.726					
S/DEPTH=1.0	*****	92.5%	88.8%	79.0%					
S/DEPTH=1.0	*****	86.384	119.875	101.607					
S/DEPTH=1.0	*****	91.6%	87.9%	78.5%					
S/DEPTH= .9	*****	76.923	109.612	97.540	38.850	9.075	.995	.130	=.000
S/DEPTH= .9	*****	90.6%	88.9%	78.0%	8.5%	=56.0%	*****	*****	*****
S/DEPTH= .8	*****	68.160	100.788	93.679	41.063	9.844	1.460	.147	=.000
S/DEPTH= .8	*****	89.7%	88.0%	77.4%	=101.3%	*****	*****	*****	*****
S/DEPTH= .7	*****	61.349	93.287	90.129	42.865	10.765	1.849	.168	=.000
S/DEPTH= .7	*****	88.7%	85.1%	76.8%	19.1%	=58.5%	*****	*****	*****
S/DEPTH= .6	*****	55.791	87.003	86.963	44.313	11.511	2.172	.189	=.000
S/DEPTH= .6	*****	87.7%	84.2%	76.2%	22.6%	=35.0%	*****	*****	*****
S/DEPTH= .5	*****	51.327	81.843	84.231	45.456	12.165	2.436	.208	=.000
S/DEPTH= .5	*****	86.7%	83.3%	75.7%	25.2%	=99.9%	*****	*****	*****
S/DEPTH= .4	*****	47.831	77.729	81.966	46.335	12.714	2.648	.225	=.000
S/DEPTH= .4	*****	85.9%	82.6%	75.2%	27.1%	=79.9%	*****	*****	*****
S/DEPTH= .3	*****	45.207	77.595	80.189	46.983	13.149	2.810	.238	=.000
S/DEPTH= .3	*****	85.2%	82.0%	74.8%	28.5%	=65.1%	*****	*****	*****
S/DEPTH= .2	*****	43.381	73.392	78.912	47.427	13.463	2.935	.248	=.000
S/DEPTH= .2	*****	84.6%	81.5%	74.5%	29.5%	=55.3%	*****	*****	*****
S/DEPTH= .1	*****	42.305	71.084	78.143	47.687	13.653	2.993	.254	=.000
S/DEPTH= .1	*****	84.3%	81.2%	74.3%	30.0%	=49.8%	*****	*****	*****
S/DEPTH= .0	*****	41.950	70.651	77.886	47.772	13.717	3.015	.256	=.000
S/DEPTH= .0	*****	84.1%	81.1%	74.2%	30.2%	=24.7%	*****	*****	*****

CASE 4=C

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA =	0	20.0	30.0	50.0	75.0	100.0	130.0	180.0	
ETA/HEIGHT=	.858	.667	.483	.273	.041	.119	.141	.142	
	41.8%	26.1%	-22.8%	=150.2%	*****	208.4%	171.3%	=253.1%	
SURFACE	=149.696	=68.043	28.090	62.770	44.879	11.127	1.967	=.391	=.290
	88.2%	74.7%	156.5%	121.9%	117.4%	90.7%	*****	*****	*****
S/DEPTH=1.5	=149.583								
	100.0%								
S/DEPTH=1.4	=139.333								
	100.0%								
S/DEPTH=1.3	=127.741	=68.397							
	86.2%	74.9%							
S/DEPTH=1.2	=115.679	=66.423	25.295						
	85.8%	75.8%	159.2%						
S/DEPTH=1.1	=103.666	=62.793	15.433	62.640					
	85.5%	76.5%	189.1%	119.4%					
S/DEPTH=1.0	=91.993	=58.115	8.332	51.356					
	85.1%	76.9%	250.4%	121.6%					
S/DEPTH=.9	=80.807	=52.795	3.352	41.805	40.811	10.903	1.974	=.361	=.275
	84.7%	77.1%	*****	123.8%	114.8%	93.2%	*****	*****	*****
S/DEPTH=.8	=70.165	=47.107	.005	33.983	35.643	10.056	1.950	=.220	=.205
	84.3%	77.2%	*****	126.2%	115.2%	94.0%	*****	*****	*****
S/DEPTH=.7	=60.068	=41.229	=2.088	27.325	30.688	9.068	1.846	=.124	=.150
	84.0%	77.1%	*****	128.5%	115.5%	94.6%	*****	*****	*****
S/DEPTH=.6	=50.481	=35.273	=3.220	21.701	25.926	7.964	1.679	=.060	=.109
	83.6%	77.1%	*****	130.6%	115.8%	95.1%	*****	*****	*****
S/DEPTH=.5	=41.350	=29.308	=3.622	16.913	21.333	6.767	1.463	=.021	=.077
	83.3%	77.0%	*****	133.0%	116.0%	*****	*****	*****	*****
S/DEPTH=.4	=32.606	=23.371	=3.476	12.786	16.887	5.496	1.211	=.001	=.054
	83.1%	76.9%	*****	135.2%	116.3%	*****	*****	*****	*****
S/DEPTH=.3	=24.178	=17.875	=2.928	9.165	12.559	4.170	.931	=.011	=.036
	82.9%	76.8%	*****	136.8%	116.4%	*****	*****	*****	*****
S/DEPTH=.2	=15.986	=11.622	=2.099	5.912	8.332	2.802	.631	=.012	=.022
	82.6%	76.8%	*****	*****	116.6%	*****	*****	*****	*****
S/DEPTH=.1	=7.953	=5.802	=1.093	2.897	4.105	1.407	.319	=.007	=.010
	82.7%	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	=.000	=.000	=.000	=.000	=.000	=.000	=.000	=.000	=.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	41.8%	.858	.667	.383	.173	.041	.119	.141	.142
		26.1%	=22.6%	=150.2%	*****	208.4%	36.5%	=171.3%	=253.1%
SURFACE	222.915	145.329	57.425	15.889	.096	=3.087	=4.534	=4.945	=4.985
	55.0%	33.3%	=51.8%	=57.1%	*****	*****	*****	*****	*****
S/DEPTH=1.5	222.514								
	100.0%								
S/DEPTH=1.4	192.592								
	100.0%								
S/DEPTH=1.3	167.149	129.866							
	40.0%	25.4%							
S/DEPTH=1.2	145.254	114.367	56.174						
	36.5%	21.8%	=45.0%						
S/DEPTH=1.1	126.189	100.491	50.899	15.879					
	33.7%	19.2%	=45.2%	=295.3%					
S/DEPTH=1.0	109.393	87.964	45.746	14.829					
	31.1%	16.9%	=45.5%	=281.2%					
S/DEPTH=.9	94.424	70.553	40.721	13.653	.059	=2.968	=4.432	=4.851	=4.891
	28.8%	14.8%	=45.9%	=269.6%	*****	*****	*****	*****	*****
S/DEPTH=.8	80.930	60.069	35.826	12.368	.029	=2.587	=3.927	=4.312	=4.348
	26.7%	12.9%	=46.3%	=259.9%	*****	*****	*****	*****	*****
S/DEPTH=.7	68.624	50.348	31.054	10.993	.015	=2.223	=3.426	=3.774	=3.806
	25.8%	11.2%	=46.7%	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	57.272	47.253	26.395	9.544	.009	=1.876	=2.928	=3.235	=3.262
	23.2%	9.7%	=47.1%	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	46.679	38.664	21.836	8.036	.007	=1.543	=2.435	=2.696	=2.719
	21.9%	8.5%	=47.5%	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	36.681	30.477	17.364	6.481	.007	=1.220	=1.944	=2.156	=2.175
	20.6%	7.5%	=47.8%	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	27.135	22.598	12.961	4.890	.007	=.907	=1.456	=1.617	=1.632
	19.9%	6.7%	=48.0%	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	17.915	14.944	8.611	3.274	.006	=.601	=.969	=1.078	=1.088
	19.3%	6.2%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	8.906	7.436	4.297	1.641	.003	=.299	=.484	=.539	=.544
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 4=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.858	.667	.383	.173	.041	.119	.137	.141	.142
	41.8%	26.1%	=22.8%	=150.2%	*****	208.4%	36.5%	=171.5%	=253.1%
SURFACE	.000	99.710	116.105	96.594	43.434	11.154	2.153	.189	*****
S/DEPTH=1.5	*****	91.0%	84.6%	72.8%	5.3%	=373.0%	*****	*****	*****
S/DEPTH=1.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.3	*****	87.349	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.2	*****	89.7%	112.663	96.483	76.3%	75.7%	2.134	.187	*****
S/DEPTH=1.1	*****	88.2%	85.2%	98.833	84.6%	66.601	2.011	.173	*****
S/DEPTH=1.0	*****	88.3%	84.6%	86.268	86.3%	75.4%	*****	*****	*****
S/DEPTH=.9	*****	87.5%	84.1%	86.116	87.6%	8.896	1.845	.158	*****
S/DEPTH=.8	*****	87.0%	84.806	76.159	76.0%	280.0%	*****	*****	*****
S/DEPTH=.7	*****	86.5%	83.5%	75.2%	75.2%	26.9%	1.643	.140	*****
S/DEPTH=.6	*****	85.2%	82.2%	48.562	45.599	=271.2%	*****	*****	*****
S/DEPTH=.5	*****	85.2%	37.166	74.9%	27.8%	6.597	1.412	.120	*****
S/DEPTH=.4	*****	85.1%	81.9%	40.006	23.513	=264.0%	*****	*****	*****
S/DEPTH=.3	*****	84.7%	29.196	31.700	18.921	5.352	1.157	.098	*****
S/DEPTH=.2	*****	84.5%	81.6%	23.597	29.1%	*****	*****	*****	*****
S/DEPTH=.1	*****	84.2%	21.588	14.254	4.058	.884	.075	*****	*****
S/DEPTH=.0	*****	84.2%	81.4%	74.4%	29.6%	*****	*****	*****	*****
S/DEPTH=.0	*****	84.2%	14.246	15.646	9.532	2.726	.597	.051	*****
S/DEPTH=.0	*****	84.2%	81.2%	74.3%	29.9%	*****	*****	*****	*****
S/DEPTH=.0	*****	84.2%	7.080	7.797	4.774	1.370	.301	.026	*****
S/DEPTH=.0	*****	81.1%	81.1%	74.2%	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

204

TABLE V. DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD... DEFINED IN EQUATION (28)

205

CASE 4=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 41.8%	10.0 26.1%	20.0 38.3%	30.0 50.0%	40.0 75.0	50.0 100.0	60.0 130.0	70.0 150.0	80.0 180.0	90.0 210.0	100.0 240.0	110.0 260.0	120.0 280.0	130.0 300.0	140.0 320.0	150.0 340.0	160.0 360.0	170.0 380.0	180.0 400.0	190.0 420.0	200.0 440.0	210.0 460.0	220.0 480.0	230.0 500.0	240.0 520.0	250.0 540.0	260.0 560.0	270.0 580.0	280.0 600.0	290.0 620.0	300.0 640.0	310.0 660.0	320.0 680.0	330.0 700.0	340.0 720.0	350.0 740.0	360.0 760.0	370.0 780.0	380.0 800.0	390.0 820.0	400.0 840.0	410.0 860.0	420.0 880.0	430.0 900.0	440.0 920.0	450.0 940.0	460.0 960.0	470.0 980.0	480.0 1000.0	490.0 1020.0	500.0 1040.0	510.0 1060.0	520.0 1080.0	530.0 1100.0	540.0 1120.0	550.0 1140.0	560.0 1160.0	570.0 1180.0	580.0 1200.0	590.0 1220.0	600.0 1240.0	610.0 1260.0	620.0 1280.0	630.0 1300.0	640.0 1320.0	650.0 1340.0	660.0 1360.0	670.0 1380.0	680.0 1400.0	690.0 1420.0	700.0 1440.0	710.0 1460.0	720.0 1480.0	730.0 1500.0	740.0 1520.0	750.0 1540.0	760.0 1560.0	770.0 1580.0	780.0 1600.0	790.0 1620.0	800.0 1640.0	810.0 1660.0	820.0 1680.0	830.0 1700.0	840.0 1720.0	850.0 1740.0	860.0 1760.0	870.0 1780.0	880.0 1800.0	890.0 1820.0	900.0 1840.0	910.0 1860.0	920.0 1880.0	930.0 1900.0	940.0 1920.0	950.0 1940.0	960.0 1960.0	970.0 1980.0	980.0 2000.0	990.0 2020.0	1000.0 2040.0	1010.0 2060.0	1020.0 2080.0	1030.0 2100.0	1040.0 2120.0	1050.0 2140.0	1060.0 2160.0	1070.0 2180.0	1080.0 2200.0	1090.0 2220.0	1100.0 2240.0	1110.0 2260.0	1120.0 2280.0	1130.0 2300.0	1140.0 2320.0	1150.0 2340.0	1160.0 2360.0	1170.0 2380.0	1180.0 2400.0	1190.0 2420.0	1200.0 2440.0	1210.0 2460.0	1220.0 2480.0	1230.0 2500.0	1240.0 2520.0	1250.0 2540.0	1260.0 2560.0	1270.0 2580.0	1280.0 2600.0	1290.0 2620.0	1300.0 2640.0	1310.0 2660.0	1320.0 2680.0	1330.0 2700.0	1340.0 2720.0	1350.0 2740.0	1360.0 2760.0	1370.0 2780.0	1380.0 2800.0	1390.0 2820.0	1400.0 2840.0	1410.0 2860.0	1420.0 2880.0	1430.0 2900.0	1440.0 2920.0	1450.0 2940.0	1460.0 2960.0	1470.0 2980.0	1480.0 3000.0	1490.0 3020.0	1500.0 3040.0	1510.0 3060.0	1520.0 3080.0	1530.0 3100.0	1540.0 3120.0	1550.0 3140.0	1560.0 3160.0	1570.0 3180.0	1580.0 3200.0	1590.0 3220.0	1600.0 3240.0	1610.0 3260.0	1620.0 3280.0	1630.0 3300.0	1640.0 3320.0	1650.0 3340.0	1660.0 3360.0	1670.0 3380.0	1680.0 3400.0	1690.0 3420.0	1700.0 3440.0	1710.0 3460.0	1720.0 3480.0	1730.0 3500.0	1740.0 3520.0	1750.0 3540.0	1760.0 3560.0	1770.0 3580.0	1780.0 3600.0	1790.0 3620.0	1800.0 3640.0	1810.0 3660.0	1820.0 3680.0	1830.0 3700.0	1840.0 3720.0	1850.0 3740.0	1860.0 3760.0	1870.0 3780.0	1880.0 3800.0	1890.0 3820.0	1900.0 3840.0	1910.0 3860.0	1920.0 3880.0	1930.0 3900.0	1940.0 3920.0	1950.0 3940.0	1960.0 3960.0	1970.0 3980.0	1980.0 4000.0	1990.0 4020.0	2000.0 4040.0	2010.0 4060.0	2020.0 4080.0	2030.0 4100.0	2040.0 4120.0	2050.0 4140.0	2060.0 4160.0	2070.0 4180.0	2080.0 4200.0	2090.0 4220.0	2100.0 4240.0	2110.0 4260.0	2120.0 4280.0	2130.0 4300.0	2140.0 4320.0	2150.0 4340.0	2160.0 4360.0	2170.0 4380.0	2180.0 4400.0	2190.0 4420.0	2200.0 4440.0	2210.0 4460.0	2220.0 4480.0	2230.0 4500.0	2240.0 4520.0	2250.0 4540.0	2260.0 4560.0	2270.0 4580.0	2280.0 4600.0	2290.0 4620.0	2300.0 4640.0	2310.0 4660.0	2320.0 4680.0	2330.0 4700.0	2340.0 4720.0	2350.0 4740.0	2360.0 4760.0	2370.0 4780.0	2380.0 4800.0	2390.0 4820.0	2400.0 4840.0	2410.0 4860.0	2420.0 4880.0	2430.0 4900.0	2440.0 4920.0	2450.0 4940.0	2460.0 4960.0	2470.0 4980.0	2480.0 5000.0	2490.0 5020.0	2500.0 5040.0	2510.0 5060.0	2520.0 5080.0	2530.0 5100.0	2540.0 5120.0	2550.0 5140.0	2560.0 5160.0	2570.0 5180.0	2580.0 5200.0	2590.0 5220.0	2600.0 5240.0	2610.0 5260.0	2620.0 5280.0	2630.0 5300.0	2640.0 5320.0	2650.0 5340.0	2660.0 5360.0	2670.0 5380.0	2680.0 5400.0	2690.0 5420.0	2700.0 5440.0	2710.0 5460.0	2720.0 5480.0	2730.0 5500.0	2740.0 5520.0	2750.0 5540.0	2760.0 5560.0	2770.0 5580.0	2780.0 5600.0	2790.0 5620.0	2800.0 5640.0	2810.0 5660.0	2820.0 5680.0	2830.0 5700.0	2840.0 5720.0	2850.0 5740.0	2860.0 5760.0	2870.0 5780.0	2880.0 5800.0	2890.0 5820.0	2900.0 5840.0	2910.0 5860.0	2920.0 5880.0	2930.0 5900.0	2940.0 5920.0	2950.0 5940.0	2960.0 5960.0	2970.0 5980.0	2980.0 6000.0	2990.0 6020.0	3000.0 6040.0	3010.0 6060.0	3020.0 6080.0	3030.0 6100.0	3040.0 6120.0	3050.0 6140.0	3060.0 6160.0	3070.0 6180.0	3080.0 6200.0	3090.0 6220.0	3100.0 6240.0	3110.0 6260.0	3120.0 6280.0	3130.0 6300.0	3140.0 6320.0	3150.0 6340.0	3160.0 6360.0	3170.0 6380.0	3180.0 6400.0	3190.0 6420.0	3200.0 6440.0	3210.0 6460.0	3220.0 6480.0	3230.0 6500.0	3240.0 6520.0	3250.0 6540.0	3260.0 6560.0	3270.0 6580.0	3280.0 6600.0	3290.0 6620.0	3300.0 6640.0	3310.0 6660.0	3320.0 6680.0	3330.0 6700.0	3340.0 6720.0	3350.0 6740.0	3360.0 6760.0	3370.0 6780.0	3380.0 6800.0	3390.0 6820.0	3400.0 6840.0	3410.0 6860.0	3420.0 6880.0	3430.0 6900.0	3440.0 6920.0	3450.0 6940.0	3460.0 6960.0	3470.0 6980.0	3480.0 7000.0	3490.0 7020.0	3500.0 7040.0	3510.0 7060.0	3520.0 7080.0	3530.0 7100.0	3540.0 7120.0	3550.0 7140.0	3560.0 7160.0	3570.0 7180.0	3580.0 7200.0	3590.0 7220.0	3600.0 7240.0	3610.0 7260.0	3620.0 7280.0	3630.0 7300.0	3640.0 7320.0	3650.0 7340.0	3660.0 7360.0	3670.0 7380.0	3680.0 7400.0	3690.0 7420.0	3700.0 7440.0	3710.0 7460.0	3720.0 7480.0	3730.0 7500.0	3740.0 7520.0	3750.0 7540.0	3760.0 7560.0	3770.0 7580.0	3780.0 7600.0	3790.0 7620.0	3800.0 7640.0	3810.0 7660.0	3820.0 7680.0	3830.0 7700.0	3840.0 7720.0	3850.0 7740.0	3860.0 7760.0	3870.0 7780.0	3880.0 7800.0	3890.0 7820.0	3900.0 7840.0	3910.0 7860.0	3920.0 7880.0	3930.0 7900.0	3940.0 7920.0	3950.0 7940.0	3960.0 7960.0	3970.0 7980.0	3980.0 8000.0	3990.0 8020.0	4000.0 8040.0	4010.0 8060.0	4020.0 8080.0	4030.0 8100.0	4040.0 8120.0	4050.0 8140.0	4060.0 8160.0	4070.0 8180.0	4080.0 8200.0	4090.0 8220.0	4100.0 8240.0	4110.0 8260.0	4120.0 8280.0	4130.0 8300.0	4140.0 8320.0	4150.0 8340.0	4160.0 8360.0	4170.0 8380.0	4180.0 8400.0	4190.0 8420.0	4200.0 8440.0	4210.0 8460.0	4220.0 8480.0	4230.0 8500.0	4240.0 8520.0	4250.0 8540.0	4260.0 8560.0	4270.0 8580.0	4280.0 8600.0	4290.0 8620.0	4300.0 8640.0	4310.0 8660.0	4320.0 8680.0	4330.0 8700.0	4340.0 8720.0	4350.0 8740.0	4360.0 8760.0	4370.0 8780.0	4380.0 8800.0	4390.0 8820.0	4400.0 8840.0	4410.0 8860.0	4420.0 8880.0	4430.0 8900.0	4440.0 8920.0	4450.0 8940.0	4460.0 8960.0	4470.0 8980.0	4480.0 9000.0	4490.0 9020.0	4500.0 9040.0	4510.0 9060.0	4520.0 9080.0	4530.0 9100.0	4540.0 9120.0	4550.0 9140.0	4560.0 9160.0	4570.0 9180.0	4580.0 9200.0	4590.0 9220.0	4600.0 9240.0	4610.0 9260.0	4620.0 9280.0	4630.0 9300.0	4640.0 9320.0	4650.0 9340.0	4660.0 9360.0	4670.0 9380.0	4680.0 9400.0	4690.0 9420.0	4700.0 9440.0	4710.0 9460.0	4720.0 9480.0	4730.0 9500.0	4740.0 9520.0	4750.0 9540.0	4760.0 9560.0	4770.0 9580.0	4780.0 9600.0	4790.0 9620.0	4800.0 9640.0	4810.0 9660.0	4820.0 9680.0	4830.0 9700.0	4840.0 9720.0	4850.0 9740.0	4860.0 9760.0	4870.0 9780.0	4880.0 9800.0	4890.0 9820.0	4900.0 9840.0	4910.0 9860.0	4920.0 9880.0	4930.0 9900.0	4940.0 9920.0	4950.0 9940.0	4960.0 9960.0	4970.0 9980.0	4980.0 10000.0	4990.0 10020.0	5000.0 10040.0	5010.0 10060.0	5020.0 10080.0	5030.0 10100.0	5040.0 10120.0	5050.0 10140.0	5060.0 10160.0	5070.0 10180.0	5080.0 10200.0	5090.0 10220.0	5100.0 10240.0	5110.0 10260.0	5120.0 10280.0	5130.0 10300.0	5140.0 10320.0	5150.0 10340.0	5160.0 10360.0	5170.0 10380.0	5180.0 10400.0	5190.0 10420.0	5200.0 10440.0	5210.0 10460.0	5220.0 10480.0	5230.0 10500.0	5240.0 10520.0	5250.0 10540.0	5260.0 10560.0	5270.0 10580.0	5280.0 10600.0	5290.0 10620.0	5300.0 10640.0	5310.0 10660.0	5320.0 10680.0	5330.0 10700.0	5340.0 10720.0	5350.0 10740.0	5360.0 10760.0	5370.0 10780.0	5380.0 10800.0	5390.0 10820.0	5400.0 10840.0	5410.0 10860.0	5420.0 10880.0	5430.0 10900.0	5440.0 10920.0	5450.0 10940.0	5460.0 10960.0	5470.0 10980.0	5480.0 11000.0	5490.0 11020.0	5500.0 11040.0	5510.0 11060.0	5520.0 11080.0	5530.0 11100.0	5540.0 11120.0	5550.0 11140.0	5560.0 11160.0	5570.0 11180.0	5580.0 11200.0	5590.0 11220.0	5600.0 11240.0	5610.0 11260.0	5620.0 11280.0	5630.0 11300.0	5640.0 11320.0	5650.0 11340.0	5660.0 11360.0	5670.0 11380.0	5680.0 11400.0	5690.0 11420.0	5700.0 11440.0	5710.0 11460.0	5720.0 11480.0	5730.0 11500.0	5740.0 11520.0	5750.0 11540.0	5760.0 11560.0	5770.0 11580.0	5780.0 11600.0	5790.0 11620.0	5800.0 11640.0	5810.0 11660.0	5820.0 11680.0	5830.0 11700.0	5840.0 11720.0	5850.0 11740.0	5860.0 11760.0	5870.0 11780.0	5880.0 11800.0	5890.0 11820.0	5900.0 11840.0	5910.0 11860.0	5920.0 11880.0	5930.0 11900.0	5940.0 11920.0	5950.0 11940.0	5960.0 11960.0	5970.0 11980.0	5980.0 12000.0	5990.0 12020.0	6000.0 12040.0	6010.0 12060.0	6020.0 12080.0	6030.0 12100.0	6040.0 12120.0	6050.0 12140.0	6060.0 12160.0	6070.0 12180.0	6080.0 12200.0	6090.0 12220.0	6100.0 12240.0	6110.0 12260.0	6120.0 12280.0	6130.0 12300.0	6140.0 12320.0	6150.0 12340.0	6160.0 12360.0	6170.0 12380.0	6180.0 12400.0	6190.0 12420.0	6200.0 12440.0	6210.0 12460.0	6220.0 12480.0	6230.0 12500.0	6240.0 12520.0	6250.0 12540.0	6260.0 12560.0	6270.0 12580.0	6280.0 12600.0	6290.0 12620.0	6300.0 12640.0	6310.0 12660.0	6320.0 12680.0	6330.0 12700.0	6340.0 12720.0	6350.0 12740.0	6360.0 12760.0	6370.0 12780.0	6380.0 12800.0	6390.0 12820.0	6400.0 12840.0	6410.0 12860.0	6420.0 12880.0	6430.0 12900.0	6440.0 12920.0	6450.0 12940.0</
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CASE 4=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.016	.030	.039	.040	.017	.010	.025	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.022	.015	.001	.020	.024	.001	.022
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.004	.001	.000	.001	.001	.000	.000	.000	.000

CASE 4=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH	
	DEFINED IN EQUATION (37)	
	.401 (13.4%)	
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY	
	DEFINED IN EQUATION (38)	
	.269 (85.6%)	
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY	
	DEFINED IN EQUATION (39)	
	.307 (65.5%)	
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY	
	DEFINED IN EQUATION (40)	
	.577 (74.9%)	
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX	
	DEFINED IN EQUATION (41)	
	.545 (77.7%)	
(6)	DIMENSIONLESS GROUP VELOCITY	
	DEFINED IN EQUATION (42)	
	.945 (91.6%)	
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM	
	DEFINED IN EQUATION (43)	
	.611 (64.0%)	
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION	
	DEFINED IN EQUATION (44)	
	.749 (90.0%)	
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION	
	DEFINED IN EQUATION (45)	
	.204 (122.7%)	

CASE 4=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS,.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10)	DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	.024835	STREAM FUNCTION	.000000
	LINEAR			
(11)	DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	.017669	STREAM FUNCTION	.000917
	LINEAR			
(12)	DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	.042575	STREAM FUNCTION	.000000
	LINEAR			
(13)	DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	.027579	STREAM FUNCTION	.003661
	LINEAR			
(14)	DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	.317183	STREAM FUNCTION	.525665
	LINEAR			
(15)	DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	.033243	STREAM FUNCTION	.278230
	LINEAR			

CASE 4=D

11TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .01553 DPT/LO = .02000
 H/DPT = .777657
 L/LO = .422461 PSI/(G*H*T) = -.002296

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.342654e+01 X(2)/(H*T*G) = -.123281e+01
 X(3)/(H*T*G) = -.499463e+02 X(4)/(H*T*G) = -.201882e+02
 X(5)/(H*T*G) = -.788821e+03 X(6)/(H*T*G) = -.298069e+03
 X(7)/(H*T*G) = -.998966e+04 X(8)/(H*T*G) = -.343589e+04
 X(9)/(H*T*G) = -.103533e+04 X(10)/(H*T*G) = -.304491e+05
 X(11)/(H*T*G) = -.465498e+06

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.889	.583	.284	.101	.055	.101	.110	.112	.111
	43.7%	15.5%	65.4%	326.7%	681.4%	227.7%	21.4%	242.4%	348.7%
SURFACE	19.899	12.419	5.621	1.840	-.953	-1.636	-1.789	-1.799	-1.780
S/DEPTH=1.0	51.9%	24.1%	59.95%	347.1%	*****	245.1%	12.9%	273.2%	368.6%
S/DEPTH=1.5	100.0%								
S/DEPTH=1.0	100.0%								
S/DEPTH=1.4	15.137	11.986							
S/DEPTH=1.3	36.7%	21.4%							
S/DEPTH=1.2	12.919	10.598	5.627						
S/DEPTH=1.1	28.0%	13.0%	55.23%						
S/DEPTH=1.0	23.9%	10.0%	52.8%						
S/DEPTH=1.0	11.294	9.535	5.627	2.046					
S/DEPTH= .9	19.9%	6.6%	51.1%	283.0%					
S/DEPTH= .8	10.655	9.106	5.603	2.266	-.869	-1.630	-1.788	-1.799	-1.780
S/DEPTH= .7	16.1%	3.3%	49.9%	241.7%	*****	242.0%	13.2%	100.0%	100.0%
S/DEPTH= .6	10.113	8.736	5.570	2.445	-.733	-1.603	-1.780	-1.798	-1.785
S/DEPTH= .5	12.5%	3.3%	49.2%	213.5%	*****	242.8%	13.7%	273.2%	100.0%
S/DEPTH= .4	9.657	8.420	5.534	2.592	-.614	-1.579	-1.773	-1.798	-1.785
S/DEPTH= .3	9.3%	2.5%	48.7%	192.7%	*****	243.6%	14.2%	273.1%	387.1%
S/DEPTH= .2	9.278	8.155	5.497	2.709	-.510	-1.556	-1.768	-1.798	-1.787
S/DEPTH= .1	6.4%	4.1%	48.5%	177.7%	*****	244.5%	14.7%	270.1%	386.1%
S/DEPTH= .0	8.968	7.935	5.462	2.803	-.423	-1.537	-1.762	-1.798	-1.788
S/DEPTH= .0	3.8%	7.0%	48.4%	166.5%	*****	245.2%	15.0%	267.5%	382.3%
S/DEPTH= .0	8.722	7.760	5.431	2.875	-.351	-1.521	-1.758	-1.798	-1.789
S/DEPTH= .0	1.7%	8.68%	48.4%	158.3%	*****	245.9%	15.3%	265.4%	379.2%
S/DEPTH= .0	8.535	7.626	5.406	2.928	-.296	-1.508	-1.755	-1.798	-1.790
S/DEPTH= .0	10.0%	10.4%	48.4%	152.5%	*****	246.5%	15.5%	263.8%	376.8%
S/DEPTH= .0	8.404	7.531	5.387	2.965	-.256	-1.498	-1.753	-1.798	-1.791
S/DEPTH= .0	1.2%	11.3%	48.4%	148.5%	*****	247.0%	15.7%	262.6%	375.1%
S/DEPTH= .0	8.326	7.475	5.375	2.987	-.233	-1.493	-1.751	-1.797	-1.791
S/DEPTH= .0	2.0%	11.9%	48.4%	146.2%	*****	247.4%	15.8%	261.9%	374.1%
S/DEPTH= .0	8.300	7.456	5.372	2.994	-.225	-1.491	-1.751	-1.797	-1.791
S/DEPTH= .0	2.2%	12.1%	48.5%	145.5%	*****	247.3%	15.8%	261.7%	373.8%

CASE 4=D

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.889	.583	.284	.101	.055	.101	.110	.112	.111
	43.7%	15.9%	65.4%	326.7%	681.4%	227.7%	21.4%	242.4%	348.7%
SURFACE	.000	7.078	6.715	4.578	1.430	.273	.046	.012	.000
S/DEPTH=1.6	.000	89.1%	77.8%	53.4%	112.8%	.046	.046	.012	.000
S/DEPTH=1.5	.000					.046	.046	.012	.000
S/DEPTH=1.4	.000	6.539				.046	.046	.012	.000
S/DEPTH=1.3	.000	88.2%				.046	.046	.012	.000
S/DEPTH=1.2	.000	5.635				.046	.046	.012	.000
S/DEPTH=1.1	.000	87.2%				.046	.046	.012	.000
S/DEPTH=1.0	.000	4.855	6.534			.046	.046	.012	.000
S/DEPTH=.9	.000	86.4%	80.1%			.046	.046	.012	.000
S/DEPTH=.8	.000	4.178	5.719			.046	.046	.012	.000
S/DEPTH=.7	.000	85.6%	79.3%			.046	.046	.012	.000
S/DEPTH=.6	.000	3.586	4.985			.046	.046	.012	.000
S/DEPTH=.5	.000	84.8%	78.5%			.046	.046	.012	.000
S/DEPTH=.4	.000	3.065	4.318			.046	.046	.012	.000
S/DEPTH=.3	.000	84.1%	77.7%			.046	.046	.012	.000
S/DEPTH=.2	.000	2.601	3.709			.046	.046	.012	.000
S/DEPTH=.1	.000	83.4%	77.0%			.046	.046	.012	.000
S/DEPTH=.0	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.9	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.8	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.7	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.6	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.5	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.4	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.3	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.2	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.1	.000	82.7%	76.4%			.046	.046	.012	.000
S/DEPTH=.0	.000	82.7%	76.4%			.046	.046	.012	.000

CASE 4=0

TABLE 11=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.889	.583	.284	.101	.055	.011	.011	.011	.011
	43.7%	15.5%	65.4%	-326.7%	681.4%	227.7%	21.4%	-242.4%	-348.7%
SURFACE	.000	167.815	145.513	89.352	22.551	4.026	.460	.489	.000
S/DEPTH=1.6	*****	95.6%	90.4%	76.4%	55.7%	*****	*****	*****	*****
S/DEPTH=1.5	*****								
S/DEPTH=1.4	*****	155.086							
S/DEPTH=1.3	*****	95.15%							
S/DEPTH=1.3	*****	134.031							
S/DEPTH=1.2	*****	94.9%							
S/DEPTH=1.2	*****	116.293	142.544						
S/DEPTH=1.1	*****	94.5%	90.6%						
S/DEPTH=1.1	*****	101.378	129.328						
S/DEPTH=1.0	*****	93.6%	89.8%						
S/DEPTH=1.0	*****	88.865	117.723						
S/DEPTH= .9	*****	92.8%	89.0%	87.724					
S/DEPTH= .9	*****	78.402	107.624	85.198					
S/DEPTH= .8	*****	92.0%	88.2%	77.4%					
S/DEPTH= .8	*****	69.695	98.922	82.971					
S/DEPTH= .7	*****	91.1%	87.4%	77.1%					
S/DEPTH= .7	*****	62.499	91.510	80.595					
S/DEPTH= .6	*****	90.3%	86.5%	76.7%					
S/DEPTH= .6	*****	56.617	85.292	78.381					
S/DEPTH= .5	*****	89.4%	85.8%	76.4%					
S/DEPTH= .5	*****	51.885	80.179	76.408					
S/DEPTH= .4	*****	88.5%	85.0%	76.0%					
S/DEPTH= .4	*****	48.176	76.098	74.734					
S/DEPTH= .3	*****	87.8%	84.3%	75.7%					
S/DEPTH= .3	*****	45.389	72.987	73.199					
S/DEPTH= .2	*****	87.1%	83.8%	75.4%					
S/DEPTH= .2	*****	43.450	70.799	72.428					
S/DEPTH= .1	*****	43.450	83.4%	75.2%					
S/DEPTH= .1	*****	42.306	69.500	71.839					
S/DEPTH= .0	*****	86.3%	83.1%	75.1%					
S/DEPTH= .0	*****	41.928	69.069	71.641					
S/DEPTH= .0	*****	86.82%	83.1%	75.0%					
					24.251	4.194	.492	.480	.000
					36.5%	*****	*****	*****	*****
					-21.8%	4.944	.702	.413	.000
					29.087	5.621	.880	.359	.000
					-10.6%	*****	*****	*****	*****
					30.914	6.218	1.032	.316	.000
					33.0%	*****	*****	*****	*****
					32.395	6.731	1.158	.253	.000
					2.7%	*****	*****	*****	*****
					33.562	7.156	1.260	.256	.000
					6.8%	*****	*****	*****	*****
					34.040	7.091	1.339	.239	.000
					9.7%	*****	*****	*****	*****
					35.052	7.731	1.396	.227	.000
					11.6%	*****	*****	*****	*****
					35.413	7.876	1.429	.219	.000
					12.6%	*****	*****	*****	*****
					35.533	7.924	1.441	.217	.000
					13.1%	*****	*****	*****	*****

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 4=D

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

ETA/HEIGHT=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
THETA =	.889	.583	.284	.101	.055	.010	.010	.112	.111
ETA/HEIGHT=	43.7%	15.5%	-65.4%	.326.7%	691.4%	227.7%	21.4%	-242.4%	-346.7%
SURFACE	242.396	119.800	37.004	7.722	.254	-2.190	-2.844	-2.951	-2.919
S/DEPTH=1.6	55.0%	12.1%	-155.2%	*****	*****	*****	*****	*****	*****
S/DEPTH=1.5	209.462	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.4	179.432	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.3	154.400	111.892	98.412	7.423	.207	-2.134	-2.799	-2.909	-2.877
S/DEPTH=1.2	133.295	86.495	26.843	6.957	*****	*****	*****	*****	*****
S/DEPTH=1.1	115.284	75.868	121.3%	121.3%	*****	*****	*****	*****	*****
S/DEPTH=1.0	99.730	66.307	120.8%	120.8%	*****	*****	*****	*****	*****
S/DEPTH=.9	86.134	57.628	120.7%	120.7%	*****	*****	*****	*****	*****
S/DEPTH=.8	74.106	49.677	120.6%	120.6%	*****	*****	*****	*****	*****
S/DEPTH=.7	63.337	42.326	120.5%	120.5%	*****	*****	*****	*****	*****
S/DEPTH=.6	53.577	35.464	120.4%	120.4%	*****	*****	*****	*****	*****
S/DEPTH=.5	44.624	28.997	120.3%	120.3%	*****	*****	*****	*****	*****
S/DEPTH=.4	36.310	22.0%	120.2%	120.2%	*****	*****	*****	*****	*****
S/DEPTH=.3	28.495	16.931	120.1%	120.1%	*****	*****	*****	*****	*****
S/DEPTH=.2	21.058	11.193	120.0%	120.0%	*****	*****	*****	*****	*****
S/DEPTH=.1	13.893	5.568	119.9%	119.9%	*****	*****	*****	*****	*****
S/DEPTH=.0	4.0%	6.903	119.8%	119.8%	*****	*****	*****	*****	*****

CASE 4=0

TABLE VI DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

DEPTH	ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
1.6	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.5	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.4	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.3	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.2	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.0	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.9	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.8	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.7	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.6	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.5	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.4	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.3	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.2	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.1	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
.0	0.889	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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CASE 4=D

TABLE VII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .889 43.7%	10.0 .583 15.5%	20.0 .284 65.8%	30.0 .101 326.7%	50.0 75.0 100.0 50.0 100.0 130.0 180.0	75.0 100.0 130.0 180.0	100.0 130.0 180.0	130.0 180.0	180.0
SURFACE	.000	101.723	78.463	47.467	13.453	2.520	.401	.142	.000
S/DEPTH#1.6	.000	94.0%	84.7%	63.3%	49.16%	44.44%	40.00%	35.56%	31.11%
S/DEPTH#1.5	.000								
S/DEPTH#1.4	.000	89.491							
S/DEPTH#1.3	.000	93.82%							
S/DEPTH#1.2	.000	69.998							
S/DEPTH#1.1	.000	92.4%							
S/DEPTH#1.0	.000	54.370							
S/DEPTH# .9	.000	87.9%							
S/DEPTH# .8	.000	91.7%							
S/DEPTH# .7	.000	41.867							
S/DEPTH# .6	.000	91.1%							
S/DEPTH# .5	.000	31.888							
S/DEPTH# .4	.000	90.4%							
S/DEPTH# .3	.000	23.949							
S/DEPTH# .2	.000	86.7%							
S/DEPTH# .1	.000	35.531							
S/DEPTH# 0	.000	86.1%							
S/DEPTH# .9	.000	26.755							
S/DEPTH# .8	.000	85.5%							
S/DEPTH# .7	.000	17.859							
S/DEPTH# .6	.000	89.1%							
S/DEPTH# .5	.000	12.704							
S/DEPTH# .4	.000	88.5%							
S/DEPTH# .3	.000	13.870							
S/DEPTH# .2	.000	84.5%							
S/DEPTH# .1	.000	88.0%							
S/DEPTH# 0	.000	9.321							
S/DEPTH# .9	.000	84.1%							
S/DEPTH# .8	.000	5.805							
S/DEPTH# .7	.000	83.7%							
S/DEPTH# .6	.000	3.196							
S/DEPTH# .5	.000	1.964							
S/DEPTH# .4	.000	854							
S/DEPTH# .3	.000	1.399							
S/DEPTH# .2	.000	854							
S/DEPTH# .1	.000	21							
S/DEPTH# 0	.000	854							
S/DEPTH# .9	.000	13.214							
S/DEPTH# .8	.000	76.0%							
S/DEPTH# .7	.000	10.040							
S/DEPTH# .6	.000	11.62%							
S/DEPTH# .5	.000	7.941							
S/DEPTH# .4	.000	2.7%							
S/DEPTH# .3	.000	5.990							
S/DEPTH# .2	.000	5.7%							
S/DEPTH# .1	.000	9.16							
S/DEPTH# 0	.000	2.441							
S/DEPTH# .9	.000	2.052							
S/DEPTH# .8	.000	1.656							
S/DEPTH# .7	.000	1.272							
S/DEPTH# .6	.000	.223							
S/DEPTH# .5	.000	.162							
S/DEPTH# .4	.000	.108							
S/DEPTH# .3	.000	.063							
S/DEPTH# .2	.000	.028							
S/DEPTH# .1	.000	.007							
S/DEPTH# 0	.000	.000							

TABLE 1. DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD... DEFINED IN EQUATION (29)

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CASE 4=D

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.035	.064	.081	.079	.032	.018	.042	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.039	.037	.031	.022	.001	.026	.033	.000	.028
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.029	.011	.011	.004	.001	.000	.002	.001	.000

CASE 4=D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37) .422 (17.8%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38) .213 (=134.8%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39) .254 (=101.8%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40) .467 (=116.9%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41) .447 (=118.1%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42) .957 (= 8.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43) .505 (= 98.5%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44) .603 (=136.5%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45) .156 (=169.5%)

CASE 4=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.047488	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024081	STREAM FUNCTION	.004832
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.085604	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.038507	STREAM FUNCTION	.028890
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.429150	STREAM FUNCTION	.732608
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.040894	STREAM FUNCTION	.286143

CASE 3-A

5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (g/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

HAVE CHARACTERISTICS

H/LO = .009752 DPT/LO = .050000
 H/DPT = .195032
 L/LO = .541016 PSI/(G*H*T) = .002188

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .646213E01 X(2)/(H*T*G) = .541774E02
 X(3)/(H*T*G) = .383873E03 X(4)/(H*T*G) = .207385E04
 X(5)/(H*T*G) = .548613E06

CASE 5=A

TABLE I=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.623	.603	.548	.257	.007	.177	.334	.377
	19.7%	18.4%	14.3%	6.9%	=24.8%	*****	=14.6%	=32.6%
SURFACE	7.659	7.412	6.711	5.666	3.093	.072	=3.844	=4.315
S/DEPTH=1.1	20.3%	18.9%	14.7%	7.1%	=25.4%	*****	=15.2%	=33.1%
S/DEPTH=1.0	19.4%	18.2%	14.4%	6.4%	3.072	*****		
S/DEPTH= .9	17.9%	16.7%	13.1%	5.468	=23.7%	.074		
S/DEPTH= .8	16.3%	15.4%	12.0%	5.272	=21.7%	*****	3.814	4.398
S/DEPTH= .7	15.3%	14.3%	11.1%	5.100	=20.1%	*****	=15.2%	33.5%
S/DEPTH= .6	14.2%	13.2%	10.2%	5.2%	=2.950	.236	=3.736	=4.237
S/DEPTH= .5	13.2%	12.3%	9.4%	4.950	=18.7%	*****	=14.5%	31.7%
S/DEPTH= .4	11.7%	10.9%	8.3%	4.7%	=16.5%	.298	=3.667	=4.183
S/DEPTH= .3	11.2%	10.4%	7.8%	4.3%	=15.7%	*****	=13.8%	30.2%
S/DEPTH= .2	10.8%	10.0%	7.5%	3.9%	=14.6%	.350	=3.606	=4.136
S/DEPTH= .1	10.5%	9.8%	7.4%	3.6%	=13.5%	*****	=13.2%	=28.9%
S/DEPTH= .0	10.5%	9.7%	7.3%	3.4%	=12.8%	.391	=3.555	=4.096
				3.2%	=12.7%	*****	=12.7%	=27.7%
				3.0%	=12.4%	.424	=3.513	=4.062
				3.1%	=12.1%	*****	=12.1%	=26.8%
				3.0%	=11.9%	.449	=3.480	=4.037
				3.0%	=11.7%	*****	=12.0%	=26.1%
				3.0%	=11.5%	.466	=3.457	=4.018
				3.0%	=11.3%	*****	=11.8%	=25.8%
				3.0%	=11.1%	.476	=3.443	=4.007
				3.0%	=10.9%	*****	=11.7%	=25.3%
				3.0%	=10.7%	.480	=3.438	=4.003
				3.0%	=10.5%	*****	=11.6%	=25.2%

CASE 5=A

TABLE 1-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	10.0 .623 19.7%	20.0 .603 14.3%	30.0 .465 6.9%	50.0 .257 24.8%	75.0 .007 *****	100.0 100.0 50.9%	130.0 130.0 14.6%	180.0 180.0 32.6%
SURFACE	.000	2.244	3.022	3.659	3.180	2.202	.875	.000
S/DEPTH=.1	***** 49.6%	47.2%	43.1%	29.7%	2.0%	37.8%	111.7%	*****
S/DEPTH=.1	***** 48.5%	46.8%	2.694	3.443	3.175			.000
S/DEPTH=.1	***** 47.1%	45.1%	41.7%	30.82	4.5%	2.051	.845	.000
S/DEPTH=.1	***** 45.9%	44.0%	40.7%	29.4%	4.5%	34.1%	112.6%	.000
S/DEPTH=.1	***** 44.9%	43.0%	39.8%	28.7%	4.5%	1.822	198.8%	.000
S/DEPTH=.1	***** 44.0%	42.2%	39.0%	28.1%	4.4%	1.593	105.2%	.000
S/DEPTH=.1	***** 43.2%	41.4%	38.2%	27.6%	4.4%	1.364	102.4%	.000
S/DEPTH=.1	***** 42.6%	40.7%	37.6%	27.1%	4.3%	1.135	102.4%	.000
S/DEPTH=.1	***** 42.0%	40.2%	37.1%	26.7%	4.3%	1.08	100.0%	.000
S/DEPTH=.1	***** 41.6%	39.8%	36.7%	26.4%	4.3%	.980	98.1%	.000
S/DEPTH=.1	***** 41.3%	39.5%	36.5%	26.2%	4.3%	.902	96.7%	.000
S/DEPTH=.1	***** 40.8%	39.0%	36.0%	25.7%	4.2%	.827	95.8%	.000
S/DEPTH=.1	***** 40.4%	38.6%	35.6%	25.3%	4.2%	.758	95.8%	.000
S/DEPTH=.1	***** 40.0%	38.2%	35.2%	25.0%	4.2%	.680	95.8%	.000
S/DEPTH=.1	***** 39.6%	37.8%	34.8%	24.6%	4.2%	.600	95.8%	.000
S/DEPTH=.1	***** 39.2%	37.4%	34.4%	24.2%	4.2%	.520	95.8%	.000
S/DEPTH=.1	***** 38.8%	37.0%	34.0%	23.8%	4.2%	.440	95.8%	.000
S/DEPTH=.1	***** 38.4%	36.6%	33.6%	23.4%	4.2%	.360	95.8%	.000
S/DEPTH=.1	***** 38.0%	36.2%	33.2%	23.0%	4.2%	.280	95.8%	.000
S/DEPTH=.1	***** 37.6%	35.8%	32.8%	22.6%	4.2%	.200	95.8%	.000
S/DEPTH=.1	***** 37.2%	35.4%	32.4%	22.2%	4.2%	.120	95.8%	.000
S/DEPTH=.1	***** 36.8%	35.0%	32.0%	21.8%	4.2%	.040	95.8%	.000
S/DEPTH=.1	***** 36.4%	34.6%	31.6%	21.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 36.0%	34.2%	31.2%	21.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 35.6%	33.8%	30.8%	20.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 35.2%	33.4%	30.4%	20.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 34.8%	33.0%	30.0%	19.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 34.4%	32.6%	29.6%	19.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 34.0%	32.2%	29.2%	19.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 33.6%	31.8%	28.8%	18.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 33.2%	31.4%	28.4%	18.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 32.8%	31.0%	28.0%	17.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 32.4%	30.6%	27.6%	17.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 32.0%	30.2%	27.2%	17.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 31.6%	29.8%	26.8%	16.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 31.2%	29.4%	26.4%	16.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 30.8%	29.0%	26.0%	15.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 30.4%	28.6%	25.6%	15.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 30.0%	28.2%	25.2%	15.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 29.6%	27.8%	24.8%	14.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 29.2%	27.4%	24.4%	14.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 28.8%	27.0%	24.0%	13.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 28.4%	26.6%	23.6%	13.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 28.0%	26.2%	23.2%	13.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 27.6%	25.8%	22.8%	12.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 27.2%	25.4%	22.4%	12.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 26.8%	25.0%	22.0%	11.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 26.4%	24.6%	21.6%	11.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 26.0%	24.2%	21.2%	11.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 25.6%	23.8%	20.8%	10.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 25.2%	23.4%	20.4%	10.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 24.8%	23.0%	20.0%	9.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 24.4%	22.6%	19.6%	9.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 24.0%	22.2%	19.2%	9.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 23.6%	21.8%	18.8%	8.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 23.2%	21.4%	18.4%	8.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 22.8%	21.0%	18.0%	7.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 22.4%	20.6%	17.6%	7.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 22.0%	20.2%	17.2%	7.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 21.6%	19.8%	16.8%	6.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 21.2%	19.4%	16.4%	6.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 20.8%	19.0%	16.0%	5.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 20.4%	18.6%	15.6%	5.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 20.0%	18.2%	15.2%	5.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 19.6%	17.8%	14.8%	4.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 19.2%	17.4%	14.4%	4.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 18.8%	17.0%	14.0%	3.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 18.4%	16.6%	13.6%	3.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 18.0%	16.2%	13.2%	3.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 17.6%	15.8%	12.8%	2.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 17.2%	15.4%	12.4%	2.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 16.8%	15.0%	12.0%	1.8%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 16.4%	14.6%	11.6%	1.4%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 16.0%	14.2%	11.2%	1.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 15.6%	13.8%	10.8%	.6%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 15.2%	13.4%	10.4%	.2%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 14.8%	13.0%	10.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 14.4%	12.6%	9.6%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 14.0%	12.2%	9.2%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 13.6%	11.8%	8.8%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 13.2%	11.4%	8.4%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 12.8%	11.0%	8.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 12.4%	10.6%	7.6%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 12.0%	10.2%	7.2%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 11.6%	9.8%	6.8%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 11.2%	9.4%	6.4%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 10.8%	9.0%	6.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 10.4%	8.6%	5.6%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 10.0%	8.2%	5.2%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 9.6%	7.8%	4.8%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 9.2%	7.4%	4.4%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 8.8%	7.0%	4.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 8.4%	6.6%	3.6%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 8.0%	6.2%	3.2%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 7.6%	5.8%	2.8%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 7.2%	5.4%	2.4%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 6.8%	5.0%	2.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 6.4%	4.6%	1.6%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 6.0%	4.2%	1.2%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 5.6%	3.8%	.8%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 5.2%	3.4%	.4%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 4.8%	3.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 4.4%	2.6%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 4.0%	2.2%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 3.6%	1.8%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 3.2%	1.4%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 2.8%	1.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 2.4%	.6%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 2.0%	.2%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 1.6%	.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 1.2%	.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 0.8%	.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 0.4%	.0%	.0%	.0%	4.2%	.000	95.8%	.000
S/DEPTH=.1	***** 0.0%	.0%	.0%	.0%	4.2%	.000	95.8%	.000

CASE 5=A

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)
 THETA = 10.0 20.0 30.0 50.0 75.0 100.0 130.0 180.0
 ETA/HEIGHT= .623 .603 .548 .465 .257 .007 .000 .000
 19.7% 18.4% 14.3% 6.0% 24.8% ***** 50.9% 32.6%

SURFACE	15.202	28.311	37.860	44.904	37.706	25.201	9.650	.000
S/DEPTH=1.1	59.5% *****	57.0% 28.137	52.9% 38.5%	38.5%	6.0%	46.4%	156.7%	*****
S/DEPTH=1.0	58.8% *****	56.8% 25.806	50.8% 35.202	37.9% 43.554	37.691	25.263	9.776	.000
S/DEPTH=.9	56.4% *****	54.4% 23.809	50.8% 32.862	41.117	36.667	42.5% *****	151.6% *****	.000
S/DEPTH=.8	54.1% *****	52.1% 22.110	48.7% 30.491	36.3% 38.998	35.730	25.316	10.103	.000
S/DEPTH=.7	51.9% *****	50.0% 20.677	46.6% 28.651	34.8% 37.177	7.2% 34.888	38.4% *****	137.3% *****	.000
S/DEPTH=.6	49.8% *****	47.9% 19.483	44.7% 27.112	33.3% 35.633	7.3% 34.147	25.330	10.182	.000
S/DEPTH=.5	47.8% *****	46.0% 18.506	42.9% 25.849	32.0% 34.353	7.4% 33.515	35.0% *****	125.6% *****	.000
S/DEPTH=.4	46.0% *****	44.3% 17.729	41.3% 24.843	30.9% 33.323	7.4% 32.993	25.293	10.811	.000
S/DEPTH=.3	44.5% *****	42.8% 17.138	39.4% 24.076	29.9% 32.533	7.4% 32.585	25.260	10.966	.000
S/DEPTH=.2	43.2% *****	41.6% 16.723	38.8% 23.336	29.1% 31.974	7.4% 32.292	28.2% *****	102.7% *****	.000
S/DEPTH=.1	42.3% *****	40.7% 16.477	38.2% 23.216	28.5% 31.641	7.4% 32.116	25.202	11.167	.000
S/DEPTH=.0	41.8% *****	40.2% 16.395	37.5% 23.110	28.1% 31.530	7.4% 32.057	25.185	11.217	.000
S/DEPTH=.0	41.6% *****	40.0% 16.395	37.3% 23.110	28.0% 31.530	7.4% 32.057	25.179	11.233	.000
						25.1%	92.9%	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 19.7%	10.0 18.4%	20.0 14.3%	30.0 6.9%	50.0 4.65	75.0 .257	100.0 50.9%	130.0 177	180.0 32.6%
	.623	.603	.548	.465	.257	.007	.177	.334	.146%
						*****	50.9%	14.6%	
SURFACE									
S/DEPTH=.1	38.090	35.733	29.253	20.173	11.306	12.557	14.766	10.094	7.613
	49.0%	46.6%	38.4%	19.2%	*****	124.1%	63.1%	56.4%	155.7%
S/DEPTH=1.0	37.124	34.997	29.031	18.422	11.567	12.529	13.557	9.729	7.420
	47.6%	45.5%	37.9%	18.9%	*****	123.7%	63.9%	57.2%	161.5%
S/DEPTH=.9	32.817	30.998	25.888	16.497	11.921	10.627	63.9%	8.673	6.670
	46.4%	44.3%	36.7%	16.0%	391.1%	125.4%	11.794	54.8%	155.4%
S/DEPTH=.8	28.791	27.244	22.887	14.587	299.6%	127.0%	63.8%	52.7%	150.3%
	45.4%	43.3%	36.0%	14.1%	245.4%	128.6%	10.121	52.7%	150.3%
S/DEPTH=.7	25.012	23.704	20.015	12.830	2.003	6.112	8.527	6.530	5.092
	44.5%	42.5%	35.4%	19.1%	210.4%	130.0%	63.7%	50.9%	145.9%
S/DEPTH=.6	21.446	20.352	17.260	12.985	1.802	4.904	7.002	5.449	4.272
	43.7%	41.7%	34.8%	19.1%	*****	131.4%	63.6%	49.4%	142.3%
S/DEPTH=.5	18.061	17.158	14.606	12.985	1.525	3.802	5.533	4.363	3.437
	43.0%	41.0%	34.3%	19.0%	*****	132.5%	63.6%	48.3%	139.4%
S/DEPTH=.4	14.827	14.100	12.040	12.985	1.191	2.782	4.110	3.275	2.588
	42.4%	40.5%	33.8%	19.0%	*****	131.4%	63.5%	47.4%	137.2%
S/DEPTH=.3	11.717	11.151	9.545	12.985	.816	1.821	2.721	2.184	1.731
	41.9%	40.0%	33.5%	18.9%	*****	132.5%	63.5%	46.7%	136.7%
S/DEPTH=.2	8.704	8.288	7.109	12.985	.415	.901	1.355	1.092	.867
	41.5%	39.6%	33.2%	18.9%	*****	131.4%	63.5%	46.7%	136.7%
S/DEPTH=.1	5.753	5.480	4.715	12.985	.000	.000	.000	.000	.000
	41.2%	39.4%	33.0%	18.9%	*****	132.5%	63.5%	46.7%	136.7%
S/DEPTH=.0	2.870	2.735	2.350	12.985	.000	.000	.000	.000	.000
	41.1%	39.2%	32.8%	18.9%	*****	131.4%	63.5%	46.7%	136.7%
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT =	0 19.7%	6.23 18.0%	10.0 16.0%	20.0 14.3%	30.0 6.9%	50.0 24.6%	75.0 0.07	100.0 50.9%	130.0 14.6%	160.0 32.6%	190.0 37.7%
SURFACE	44.289	41.784	40.821	35.033	25.939	8.927	.139	2.807	11.955	15.603	
S/DEPTH#1.1	28.1%	26.3%	40.821	20.3%	9.4%	41.4%	*****	70.2%	26.4%	59.7%	
S/DEPTH#1.0	26.1%	24.5%	35.688	19.6%	23.130	8.450	.139		11.444	15.153	
S/DEPTH# .9	37.593	32.645	31.018	17.9%	8.2%	38.4%	*****	-2.536	27.7%	54.3%	
S/DEPTH# .8	23.7%	22.1%	22.1%	17.1%	7.8%	36.8%	*****	70.4%	10.019	31.332	
S/DEPTH# .7	28.1%	26.735	21.83%	22.924	17.560	6.614	.133	*****	27.0%	52.7%	
S/DEPTH# .6	22.8%	22.773	20.6%	16.4%	7.3%	35.5%	*****	*****	26.0%	51.3%	
S/DEPTH# .5	23.934	20.6%	19.075	15.8%	7.0%	34.4%	.126	1.818	8.650	11.560	
S/DEPTH# .4	20.036	20.0%	15.3%	16.414	12.650	4.872	.116	1.508	7.328	9.830	
S/DEPTH# .3	21.4%	20.0%	15.3%	15.3%	6.7%	33.5%	*****	*****	26.0%	50.2%	
S/DEPTH# .2	16.370	15.591	13.435	10.378	4.031	32.8%	.102	1.222	6.047	8.137	
S/DEPTH# .1	20.5%	12.887	12.279	14.9%	6.4%	32.8%	*****	*****	25.5%	59.2%	
S/DEPTH# .0	20.4%	19.0%	19.0%	10.592	3.205	3.205	.085	9.56	4.798	6.473	
S/DEPTH# .3	9.546	9.098	7.854	14.5%	6.2%	32.2%	*****	*****	25.0%	58.4%	
S/DEPTH# .2	20.1%	18.7%	14.3%	7.854	6.087	2.392	.066	7.04	3.576	4.834	
S/DEPTH# .1	6.508	6.013	5.194	14.3%	6.0%	31.7%	*****	*****	25.0%	57.8%	
S/DEPTH# .0	19.6%	18.5%	14.1%	5.194	4.029	1.589	.045	4.64	2.373	3.213	
S/DEPTH# .1	3.138	2.991	2.585	5.9%	5.9%	*****	*****	*****	25.0%	57.3%	
S/DEPTH# .0	19.7%	18.3%	13.9%	2.585	2.006	.793	.023	2.30	1.183	1.603	
S/DEPTH# .0	0.00	0.00	0.00	*****	*****	*****	*****	*****	*****	*****	
S/DEPTH# .0	0.00	0.00	0.00	*****	*****	*****	*****	*****	*****	*****	

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TABLE V=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT=	0 .623 19.7%	10.0 .603 18.4%	20.0 .548 14.3%	30.0 .465 6.9%	50.0 .257 =24.8%	75.0 .007 *****	100.0 50.9%	130.0 =334 =14.6%	180.0 =377 =32.6%
SURFACE	***** .000	11.822	22.246	30.246	37.628	34.025	24.349	10.026	***** .000
S/DEPTH=1.1	***** .000	50.2%	47.9%	44.1%	31.3%	4.7%	=34.3%	=109.8%	***** *****
S/DEPTH=1.0	***** .000	11.555	22.051						***** *****
S/DEPTH=.9	***** .000	49.1%	47.5%	42.7%	31.8%	7.2%		9.688	***** *****
S/DEPTH=.8	***** .000	10.126	19.357	26.936	35.407	33.972	22.736	110.3%	***** *****
S/DEPTH=.7	***** .000	47.7%	45.8%	41.7%	31.1%	7.3%	=30.7%	=110.3%	***** *****
S/DEPTH=.6	***** .000	8.816	16.879	23.546	31.177	30.254	20.207	8.694	***** *****
S/DEPTH=.5	***** .000	46.5%	44.7%	41.7%	31.1%	7.3%	=29.5%	=106.0%	***** *****
S/DEPTH=.4	***** .000	7.608	14.585	20.392	27.173	26.635	17.674	7.669	***** *****
S/DEPTH=.3	***** .000	45.5%	43.8%	40.8%	30.5%	7.3%	=28.0%	=103.3%	***** *****
S/DEPTH=.2	***** .000	6.485	12.448	17.437	23.367	23.105	15.142	6.619	***** *****
S/DEPTH=.1	***** .000	44.6%	42.9%	40.0%	29.9%	7.3%	=27.5%	=100.5%	***** *****
S/DEPTH=.0	***** .000	5.434	10.442	14.651	19.729	19.654	12.611	5.547	***** *****
	***** .000	43.8%	42.1%	39.3%	29.4%	7.3%	=26.8%	=98.1%	***** *****
	***** .000	4.443	8.544	12.006	16.232	16.272	10.083	4.458	***** *****
	***** .000	43.1%	41.5%	38.6%	28.9%	7.3%	=26.2%	=96.3%	***** *****
	***** .000	3.499	6.734	9.473	12.850	12.948	7.559	3.355	***** *****
	***** .000	42.5%	40.9%	38.1%	28.6%	7.3%	=25.8%	=94.9%	***** *****
	***** .000	2.593	4.992	7.029	9.559	9.670	5.037	2.242	***** *****
	***** .000	42.1%	40.5%	37.8%	28.3%	7.3%	=25.5%	=93.9%	***** *****
	***** .000	1.713	3.301	4.650	6.336	6.427	2.518	1.123	***** *****
	***** .000	*****	40.2%	37.5%	28.1%	7.3%	=25.3%	*****	***** *****
	***** .000	.852	1.642	3.115	3.157	3.208	=25.1%	*****	***** *****
	***** .000	*****	*****	37.3%	28.0%	7.3%	=25.0%	*****	***** *****
	***** .000	*****	*****	*****	*****	*****	*****	*****	***** *****
	***** .000	*****	*****	*****	*****	*****	*****	*****	***** *****

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

[illegible]

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.623	.603	.548	.465	.257	.007	.177	.334	.377
	19.7%	18.4%	14.3%	6.9%	24.8%	*****	50.9%	14.6%	32.6%
SURFACE	.000	7.277	13.486	17.911	20.966	17.514	11.785	4.573	.000
S/DEPTH=1.1	*****	54.1%	51.4%	47.0%	32.3%	2.3%	40.2%	117.4%	*****
S/DEPTH=1.0	*****	6.981	13.271	14.450	18.689	17.460	10.243	4.263	.000
S/DEPTH=.9	*****	52.1%	50.6%	45.0%	33.5%	7.1%	33.5%	119.9%	*****
S/DEPTH=.8	*****	5.480	48.2%	11.227	14.666	17.928	8.093	3.418	.000
S/DEPTH=.7	*****	4.234	8.084	43.6%	32.5%	7.2%	6.093	113.8%	*****
S/DEPTH=.6	*****	48.6%	6.133	8.544	11.263	10.851	31.6%	2.650	.000
S/DEPTH=.5	*****	3.206	47.2%	42.3%	31.6%	7.3%	6.193	108.6%	*****
S/DEPTH=.4	*****	2.364	4.529	6.326	8.407	7.3%	30.0%	1.967	.000
S/DEPTH=.3	*****	46.0%	44.2%	41.2%	30.8%	5.959	4.547	104.3%	*****
S/DEPTH=.2	*****	1.680	3.224	4.514	6.041	7.3%	28.7%	1.378	.000
S/DEPTH=.1	*****	44.8%	43.1%	40.2%	30.0%	4.098	3.155	100.7%	*****
S/DEPTH=.0	*****	1.134	2.180	3.056	4.116	7.3%	27.6%	.888	.000
	*****	43.8%	42.2%	39.3%	29.4%	2.602	2.018	502	.000
	*****	.709	1.365	1.918	2.594	7.3%	26.7%	.224	.000
	*****	41.4%	41.4%	38.6%	28.9%	1.454	1.134	.056	.000
	*****	.392	.754	1.062	1.441	7.3%	26.1%	.000	.000
	*****	40.0%	39.0%	36.0%	28.5%	.643	.504	.000	.000
	*****	.172	.331	.466	.635	*****	126	.000	.000
	*****	40.3	.082	.116	.158	*****	.000	.000	.000
	*****	40.0	.000	.000	.000	*****	.000	.000	.000
	*****	.000	.000	.000	.000	*****	.000	.000	.000
	*****	.000	.000	.000	.000	*****	.000	.000	.000

CASE 5=A

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	10.0 .623 10.7	20.0 .603 10.4	30.0 .548 6.9%	50.0 .257 -24.8%	75.0 *****	100.0 .117 50.9%	130.0 -33.4 -14.6%	180.0 -5.377 -32.6%
SURFACE	1.246	1.207	1.096	.930	.515	.354	.668	.754
S/DEPTH=.1	20.2%	18.9%	14.7%	7.3%	-24.7%	52.2%	-14.5%	-32.9%
S/DEPTH=.1	1.233	1.197	1.093		*****			
S/DEPTH=.1	19.4%	18.2%	14.5%					
S/DEPTH=.1	1.177	1.144	1.049	.902	.514	.339	.663	.751
S/DEPTH=.1	18.0%	16.9%	13.3%	6.7%	-22.8%	52.1%	-14.5%	-33.4%
S/DEPTH=.1	1.128	1.098	1.010	.874	.511	.319	.648	.740
S/DEPTH=.1	16.8%	15.7%	12.4%	6.3%	-20.2%	51.4%	-13.5%	-31.5%
S/DEPTH=.1	1.085	1.057	.976	.849	.508	.301	.635	.730
S/DEPTH=.1	15.7%	14.7%	11.6%	6.0%	-18.4%	50.7%	-12.7%	-29.8%
S/DEPTH=.1	1.049	1.022	.946	.828	.504	.286	.624	.721
S/DEPTH=.1	14.7%	13.7%	10.9%	5.6%	-16.7%	50.0%	-12.0%	-28.4%
S/DEPTH=.1	1.017	.993	.921	.809	.501	.274	.614	.714
S/DEPTH=.1	13.8%	12.9%	10.2%	5.3%	-15.3%	49.4%	-11.4%	-27.2%
S/DEPTH=.1	.991	.968	.900	.793	.498	.264	.607	.707
S/DEPTH=.1	13.0%	12.2%	9.6%	5.0%	-14.2%	.088	-10.9%	-26.2%
S/DEPTH=.1	.970	.948	.883	.780	.495	.256	.601	.703
S/DEPTH=.1	12.4%	11.6%	9.2%	4.8%	-13.3%	48.8%	-10.6%	-25.5%
S/DEPTH=.1	.954	.932	.869	.770	.493	.251	.596	.699
S/DEPTH=.1	11.9%	11.1%	8.8%	4.6%	-12.6%	48.1%	-10.3%	-24.9%
S/DEPTH=.1	.942	.921	.860	.763	.492	.248	.594	.697
S/DEPTH=.1	11.5%	10.8%	8.5%	4.5%	-12.2%	47.9%	-10.1%	-24.6%
S/DEPTH=.1	.935	.915	.854	.759	.491	.247	.593	.696
S/DEPTH=.1	11.3%	10.6%	8.4%	4.4%	-11.9%	47.8%	-10.1%	-24.5%
S/DEPTH=.1	.933	.912	.853	.757	.490			
S/DEPTH=.1	11.2%	10.5%	8.3%	4.4%	-11.8%			

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.002	.005	.006	.007	.003	.002	.006	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.003	.003	.003	.002	.000	.001	.002	.001	.001
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 5=a

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.541 (= 1.8%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.078 (= 4.6%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.488 (= 3.4%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.966 (= 4.0%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.866 (= 4.4%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.896 (= .3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.872 (= 3.1%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.238 (= 5.2%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.372 (= 7.3%)

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TABLE XI(CONT) OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.004482	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.001692	STREAM FUNCTION	.000059
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.005863	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.002977	STREAM FUNCTION	.000126
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.112027	STREAM FUNCTION	.138051
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.030212	STREAM FUNCTION	.059116

CASE 5=B

7TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 2\pi^2) \cdot T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .019505 DPT/LO = .050000

H/DPT = .390096

L/LO = .566016 PSI/(GHT) = .003854

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(HT*G) =	.581513e01	X(2)/(HT*G) =	.882370e02
X(3)/(HT*G) =	.119208e02	X(4)/(HT*G) =	.134049e03
X(5)/(HT*G) =	.105424e04	X(6)/(HT*G) =	.110024e06
X(7)/(HT*G) =	.161493e06		

CASE 5=8

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (21)

THETA = ETA*HEIGHT=	0 30.1%	10.0 26.8%	20.0 16.4%	30.0 5.0%	50.0 110.1%	75.0 267.7%	100.0 55.7%	130.0 42.3%	160.0 75.8%
SURFACE	9.268 31.9%	8.684 28.5%	7.192 17.8%	5.313 2.0%	1.840 115.3%	.894 273.9%	2.220 54.2%	2.987 45.1%	3.142 77.9%
S/DEPTH=1.2	8.744 27.8%	8.312 25.3%	7.111 16.9%						
S/DEPTH=1.1	8.161 25.1%	7.780 22.7%	6.716 14.5%	5.181 2.1%					
S/DEPTH=1.0	7.657 22.8%	7.318 20.4%	6.369 12.8%	4.931 2.6%	1.889 101.2%				
S/DEPTH=.9	7.222 20.6%	6.919 18.3%	6.067 11.1%	4.820 3.1%	1.956 88.3%	.784 289.5%	2.194 54.6%	2.951 44.9%	3.124 78.7%
S/DEPTH=.8	6.850 18.5%	6.576 16.4%	5.805 9.6%	4.668 3.6%	2.011 78.4%	.645 324.0%	2.091 53.6%	2.917 43.0%	3.106 75.4%
S/DEPTH=.7	6.534 16.8%	6.285 14.7%	5.580 8.3%	4.535 4.0%	2.051 70.7%	.527 367.4%	2.001 52.7%	2.886 41.5%	3.089 72.5%
S/DEPTH=.6	6.270 15.0%	6.040 13.1%	5.390 7.1%	4.420 4.4%	2.080 64.7%	.428 448.0%	1.923 51.9%	2.860 40.1%	3.075 70.1%
S/DEPTH=.5	6.052 13.8%	5.839 11.8%	5.232 6.0%	4.333 4.8%	2.102 60.0%	.347 440.1%	1.858 51.1%	2.839 39.0%	3.063 68.2%
S/DEPTH=.4	5.878 12.8%	5.678 10.8%	5.106 5.2%	4.215 5.1%	2.117 56.4%	.283 444.0%	1.804 50.4%	2.822 38.2%	3.054 66.7%
S/DEPTH=.3	5.746 11.4%	5.555 9.8%	5.009 4.5%	4.144 5.4%	2.128 51.8%	.233 448.0%	1.763 49.9%	2.809 37.6%	3.048 65.6%
S/DEPTH=.2	5.653 10.2%	5.468 9.1%	4.940 4.0%	4.041 5.5%	2.135 52.0%	.199 448.0%	1.733 49.4%	2.802 37.4%	3.043 64.9%
S/DEPTH=.1	5.597 10.3%	5.416 8.7%	4.899 3.7%	4.115 5.7%	2.138 50.9%	.178 448.0%	1.716 49.2%	2.800 37.4%	3.042 64.7%
S/DEPTH=.0	5.579 10.2%	5.399 8.6%	4.886 3.6%	4.106 5.7%	2.140 50.5%	.171 448.0%	1.710 49.1%		

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	30.1%	.716	.673	.562	.420	.150	.077	.196	.269
		26.8%	16.4%	16.4%	3.0%	114.1%	267.7%	55.7%	42.3%
SURFACE	.000	2.084	3.580	4.289	3.963	2.452	1.252	.343	.000
S/DEPTH=1.2	*****	68.1%	63.7%	56.3%	30.7%	30.7%	137.6%	392.9%	*****
	.000	1.909	3.487						
S/DEPTH=1.1	*****	65.1%	62.7%						
	.000	1.656	3.034	3.935					
S/DEPTH=1.0	*****	63.4%	60.6%	55.6%					
	.000	1.431	2.630	3.428	3.688				
S/DEPTH=.9	*****	61.0%	59.2%	54.2%	34.8%				
	.000	1.231	2.267	2.969	3.240	2.273	1.225		
S/DEPTH=.8	*****	60.6%	57.9%	52.9%	33.9%	18.7%	124.7%	.314	.000
	.000	1.050	1.940	2.550	2.818	2.017	1.104		
S/DEPTH=.7	*****	59.3%	56.6%	51.8%	33.1%	17.8%	119.4%	403.4%	.000
	.000	.887	1.641	2.165	2.418	1.762	.978	.281	.000
S/DEPTH=.6	*****	58.2%	55.5%	50.7%	32.4%	17.0%	114.9%	387.7%	.000
	.000	.737	1.366	1.808	2.038	1.507	.847	.246	.000
S/DEPTH=.5	*****	57.3%	54.6%	49.8%	31.8%	16.4%	111.1%	374.7%	.000
	.000	.598	1.111	1.474	1.674	1.253	.711	.208	.000
S/DEPTH=.4	*****	56.4%	53.7%	49.0%	31.2%	15.8%	108.1%	355.7%	.000
	.000	.469	.871	1.158	1.324	1.001	.573	.169	.000
S/DEPTH=.3	*****	55.7%	53.0%	48.3%	30.8%	15.5%	105.7%	338.7%	.000
	.000	.346	.643	.856	.984	.749	.432	.128	.000
S/DEPTH=.2	*****	55.1%	52.5%	47.8%	30.4%	15.2%	103.9%	322.7%	.000
	.000	.228	.424	.565	.652	.499	.289	.086	.000
S/DEPTH=.1	*****	54.7%	52.1%	47.5%	30.2%	15.0%	102.6%	308.7%	.000
	.000	.113	.211	.281	.325	.249	.145	.043	.000
S/DEPTH=.0	*****	*****	*****	47.2%	30.0%	14.8%	*****	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.716	.673	.562	.420	.150	.077	.0196	.0269
	30.1%	26.8%	16.4%	3.0%	114.1%	267.7%	42.3%	75.8%
SURFACE	.000	28.227	47.938	56.418	49.500	28.166	13.502	3.523
S/DEPTH=1.2	.000	79.1%	75.7%	69.6%	45.8%	24.3%	175.5%	659.6%
S/DEPTH=1.1	.000	26.016	46.821					
S/DEPTH=1.0	.000	77.4%	75.1%					
S/DEPTH=.9	.000	22.925	41.536	52.694				
S/DEPTH=.8	.000	72.9%	72.9%	68.3%	47.572	47.786		
S/DEPTH=.7	.000	73.1%	70.7%	66.2%	46.4%	45.097	13.723	
S/DEPTH=.6	.000	18.130	33.285	43.209	46.1%	45.1%	165.9%	
S/DEPTH=.5	.000	70.9%	68.5%	64.1%	59.9%	42.5%	143.8%	553.8%
S/DEPTH=.4	.000	10.299	30.114	39.515	42.710	43.8%	15.283	4.225
S/DEPTH=.3	.000	68.7%	66.3%	62.0%	40.624	40.2%	127.0%	488.1%
S/DEPTH=.2	.000	14.780	27.473	36.413	41.5%	41.5%	114.0%	45.24
S/DEPTH=.1	.000	66.5%	64.2%	59.9%	38.834	38.834	15.871	4.524
	.000	68.3%	62.1%	57.9%	41.5%	41.5%	138.9%	438.9%
	.000	13.533	25.297	33.841	37.534	37.534	16.347	4.778
	.000	15.526	23.535	31.745	40.42%	40.42%	104.1%	402.0%
	.000	65.3%	60.1%	56.1%	36.119	36.119	16.722	4.986
	.000	11.734	22.145	30.085	39.2%	39.2%	96.6%	374.5%
	.000	60.5%	58.4%	54.5%	35.180	35.180	17.004	5.149
	.000	11.138	21.096	28.826	38.5%	38.5%	91.1%	354.6%
	.000	59.0%	57.0%	53.2%	34.514	34.514	17.201	5.266
	.000	10.722	20.363	27.944	37.9%	37.9%	87.3%	341.2%
	.000	57.9%	55.9%	52.6%	34.116	34.116	85.1%	333.4%
	.000	10.476	19.930	27.422	37.5%	37.5%	85.1%	333.4%
	.000	57.2%	55.2%	51.6%	33.983	33.983	17.355	5.160
	.000	10.395	19.787	27.249	37.4%	37.4%	84.4%	330.8%
	.000	56.9%	55.0%	51.4%				

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

[illegible]

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEYTA ETA/HEIGHTS	0 30.1%	10.0 26.8%	20.0 16.8%	30.0 3.0%	50.0 114.1%	75.0 267.7%	100.0 55.7%	130.0 42.3%	180.0 75.284 75.8%
SURFACE	44.538	39.110	26.979	15.072	2.287	.147	.1.653	3.358	3.782
S/DEPTH#1.2	48.4%	43.8%	26.8%	8.8%	258.1%	*****	*****	80.3%	141.2%
S/DEPTH#1.1	36.581	33.565	25.792						
S/DEPTH#1.0	37.2%	34.0%	23.2%						
S/DEPTH#1.0	28.367	26.121	20.297	13.078					
S/DEPTH#1.0	33.9%	30.4%	18.4%	7.6%					
S/DEPTH#1.0	21.800	20.138	15.802	10.562	2.077				
S/DEPTH#1.0	31.4%	28.0%	16.8%	8.8%	*****				
S/DEPTH#1.0	16.543	15.325	12.130	8.076	1.725	.101	.1.549		
S/DEPTH#1.0	29.1%	25.8%	14.6%	8.0%	*****	*****	*****		
S/DEPTH#1.0	12.336	11.455	9.135	6.163	1.390	.058	.1.159	2.648	3.044
S/DEPTH#1.0	27.1%	23.8%	13.0%	9.5%	*****	*****	*****	99.4%	195.6%
S/DEPTH#1.0	8.977	8.554	6.705	4.575	1.081	.032	.845	2.002	2.316
S/DEPTH#1.0	25.2%	22.1%	11.8%	10.0%	*****	*****	*****	*****	189.8%
S/DEPTH#1.0	6.314	5.886	4.750	3.272	.803	.017	.594	1.455	1.892
S/DEPTH#1.0	23.6%	20.6%	10.4%	10.5%	*****	*****	*****	*****	*****
S/DEPTH#1.0	4.226	3.946	3.199	2.221	.583	.009	.398	1.001	1.170
S/DEPTH#1.0	22.1%	19.3%	9.3%	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	2.825	2.454	1.896	1.395	*****	.004	.247	.636	.746
S/DEPTH#1.0	21.8%	18.2%	11.8%	*****	3.83	*****	*****	*****	*****
S/DEPTH#1.0	1.443	1.350	1.101	.773	.205	.002	.136	.355	.418
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	.631	.590	.483	.340	.091	.001	.059	.157	.185
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	.156	.146	.120	.084	.023	.000	.015	.039	.046
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#1.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.716	.673	.562	.420	.150	.077	.269	.284
	30.1%	26.8%	16.4%	3.0%	114.1%	267.7%	42.3%	75.8%
SURFACE	.000	14.681	24.251	27.651	23.333	13.428	6.621	1.776
	*****	74.9%	70.4%	65.5%	34.8%	31.4%	144.0%	397.3%
S/DEPTH=1.2	.000	12.599	23.152					*****
	*****	70.8%	68.9%					*****
S/DEPTH=1.1	.000	9.787	18.076	23.701				*****
	*****	68.6%	66.3%	61.8%				*****
S/DEPTH=1.0	.000	7.519	13.952	18.440	20.402			*****
	*****	67.0%	64.6%	60.3%	42.6%			*****
S/DEPTH=.9	.000	5.694	10.613	14.130	15.990	11.579	6.329	*****
	*****	65.3%	63.0%	58.8%	41.7%	9.1%	119.2%	*****
S/DEPTH=.8	.000	4.252	7.920	10.616	12.258	9.156	5.126	*****
	*****	63.8%	61.5%	57.4%	40.9%	7.5%	110.9%	*****
S/DEPTH=.7	.000	3.067	5.791	7.769	9.133	7.007	4.006	*****
	*****	62.3%	60.1%	56.1%	40.1%	6.0%	104.1%	*****
S/DEPTH=.6	.000	2.147	4.047	5.487	6.551	5.143	2.994	*****
	*****	61.0%	58.8%	54.9%	39.4%	4.8%	98.5%	*****
S/DEPTH=.5	.000	1.430	2.704	3.683	4.456	3.566	2.107	*****
	*****	59.8%	57.7%	54.9%	38.8%	4.0%	94.0%	*****
S/DEPTH=.4	.000	.865	1.676	2.292	2.804	2.279	1.363	*****
	*****	56.7%	53.0%	50.1%	36.3%	3.3%	90.5%	*****
S/DEPTH=.3	.000	.484	.920	1.262	1.556	1.280	.773	*****
	*****	54.4%	51.1%	48.1%	34.9%	3.0%	86.1%	*****
S/DEPTH=.2	.000	.211	.401	.552	.685	.568	.346	*****
	*****	52.4%	49.1%	45.8%	32.8%	2.7%	82.8%	*****
S/DEPTH=.1	.000	.052	.099	.137	.170	.142	.087	*****
	*****	50.8%	47.5%	44.2%	31.3%	2.4%	79.5%	*****
S/DEPTH=.0	.000	*****	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	30.1%	71.6	67.3	56.2	42.0	31.50	20.77	19.6	28.4
		26.8%	16.4%	16.4%	3.0%	114.1%	267.7%	55.7%	75.8%
SURFACE	1.431	1.345	1.123	.841	.300	-.154	-.392	-.538	-.569
31.2%	27.9%	17.6%	17.6%	1.6%	112.4%	270.8%	58.5%	11.3%	76.3%
1.366	1.300	1.114							
28.0%	25.4%	16.9%							
S/DEPTH=1.1	1.292	1.233	1.069	.830					
25.9%	23.5%	15.5%	15.5%	1.0%					
S/DEPTH=1.0	1.226	1.174	1.028	.813	.315				
24.0%	21.8%	14.4%	14.4%	.4%	96.7%				
S/DEPTH= .9	1.167	1.121	1.091	.797	.336	-.131	-.387	-.518	-.558
22.2%	20.1%	15.3%	15.3%	.1%	80.5%	299.4%	59.9%	10.8%	77.1%
S/DEPTH= .8	1.117	1.075	.958	.781	.353	-.102	-.366	-.531	-.565
20.5%	18.6%	12.3%	12.3%	.1%	68.7%	354.8%	60.3%	10.8%	77.1%
S/DEPTH= .7	1.073	1.035	.928	.767	.366	-.077	-.348	-.524	-.561
19.0%	17.2%	11.4%	11.4%	.2%	59.9%	434.3%	60.7%	10.8%	77.1%
S/DEPTH= .6	1.036	1.001	.903	.754	.376	-.057	-.332	-.518	-.558
17.6%	15.9%	10.6%	10.6%	.2%	53.2%	444.4%	61.1%	10.8%	77.1%
S/DEPTH= .5	1.005	.973	.882	.742	.384	-.040	-.319	-.513	-.555
16.4%	14.8%	9.8%	9.8%	.2%	48.2%	444.4%	61.4%	10.8%	77.1%
S/DEPTH= .4	.980	.950	.865	.733	.390	-.026	-.308	-.508	-.553
15.4%	13.9%	9.2%	9.2%	.2%	44.4%	444.4%	61.6%	10.8%	77.1%
S/DEPTH= .3	.961	.933	.851	.725	.394	-.016	-.300	-.505	-.551
14.6%	13.2%	8.7%	8.7%	.1%	41.6%	444.4%	61.8%	10.8%	77.1%
S/DEPTH= .2	.947	.920	.842	.720	.397	-.009	-.294	-.503	-.550
14.0%	12.7%	8.3%	8.3%	.1%	39.8%	444.4%	61.9%	10.8%	77.1%
S/DEPTH= .1	.939	.913	.836	.717	.399	-.004	-.290	-.501	-.549
13.7%	12.4%	8.1%	8.1%	.0%	38.7%	444.4%	62.0%	10.8%	77.1%
S/DEPTH= .0	.937	.910	.834	.715	.399	-.003	-.289	-.501	-.549
13.6%	12.2%	8.0%	8.0%	.0%	38.3%	444.4%	62.1%	10.8%	77.1%

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.012	.021	.028	.030	.013	.008	.021	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.008	.008	.007	.006	.003	.002	.005	.003	.001
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.566 (=1%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.423 (=18.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.450 (=13.3%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.873 (=15.6%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.783 (=16.3%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.897 (=6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.895 (=12.0%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.095 (=19.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.511 (=26.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.018708	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.004446	STREAM FUNCTION	.000051
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.030920	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.007980	STREAM FUNCTION	.000118
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.231827	STREAM FUNCTION	.319382
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.058206	STREAM FUNCTION	.167397

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9TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{1/3} T^{**2}$
 DEFINITIONS
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .029163 DPT/LO = .050000
 H/DPT = .583254
 L/LO = .597070 PSI/(G**T) = -.004620

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H**G) = -.496008+01 X(2)/(H**G) = -.100293+01
 X(3)/(H**G) = -.196720+02 X(4)/(H**G) = -.344805+03
 X(5)/(H**G) = -.529054+04 X(6)/(H**G) = -.690545+05
 X(7)/(H**G) = -.751650+06 X(8)/(H**G) = -.102361+06
 X(9)/(H**G) = -.621646+07

CASE 5=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.784	.687	.498	.318	.059	.106	.175	.209	.216
	36.3%	28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	11.068	9.531	6.692	4.139	.748	1.176	1.897	2.242	2.306
S/DEPTH=1.4	40.9%	32.5%	8.7%	34.9%	441.2%	233.3%	46.7%	89.6%	136.7%
S/DEPTH=1.3	100.0%	9.527	100.0%						
S/DEPTH=1.2	31.0%	9.487	8.021						
S/DEPTH=1.1	27.1%	26.2%	6.1%						
S/DEPTH=1.0	23.5%	22.4%	6.1%						
S/DEPTH=.9	20.8%	19.1%	4.0%	4.064					
S/DEPTH=.8	17.0%	16.4%	5.663	3.673	.809				
S/DEPTH=.7	14.0%	13.1%	5.148	3.797	.961	1.120			
S/DEPTH=.6	11.3%	10.3%	4.942	3.883	.961	232.5%	246.3%	2.229	2.300
S/DEPTH=.5	8.9%	7.9%	3.6%	3.718	1.184	261.6%	278.1%	47.0%	137.3%
S/DEPTH=.4	5.853	5.563	4.767	3.647	1.263	261.6%	278.1%	88.8%	137.6%
S/DEPTH=.3	5.286	5.057	4.417	3.492	1.407	261.6%	278.1%	85.7%	133.2%
S/DEPTH=.2	3.7%	3.467	3.3%	3.585	1.325	261.6%	278.1%	83.3%	129.4%
S/DEPTH=.1	2.7%	2.467	2.3%	3.463	1.372	295.3%	45.6%	83.3%	129.4%
S/DEPTH=.0	1.9%	1.643	1.5%	3.533	1.431	312.4%	45.6%	81.4%	126.4%
				3.645	1.445	328.1%	44.9%	81.4%	126.4%
				4.316	1.570	342.4%	44.9%	79.9%	124.0%
				4.897	1.565	356.2%	44.5%	78.0%	122.3%
				5.108	1.544	369.2%	44.5%	78.0%	122.3%
				5.8%	1.544	382.2%	44.5%	77.9%	121.0%

CASE 50C

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.784	.687	.498	.318	.059	.106	.175	.209	.216
	36.3%	28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	.000	3.251	4.660	4.722	3.348	1.592	.660	.145	.000
S/DEPTH=1.4	*****	77.6%	69.6%	57.0%	12.7%	106.6%	342.1%	*****	*****
	.000	3.248							
S/DEPTH=1.3	*****	100.0%							
	.000	2.762							
S/DEPTH=1.2	*****	73.6%	4.063						
	.000	2.352							
S/DEPTH=1.1	*****	71.5%	67.5%	4.187					
	.000	2.004	3.489	58.3%					
S/DEPTH=1.0	*****	69.7%	65.7%	58.7%	3.214				
	.000	1.705	2.989	3.626	25.2%				
S/DEPTH=.9	*****	68.0%	64.1%	56.7%	2.838	1.535			
	.000	1.445	2.550	3.122	24.6%	75.8%			
S/DEPTH=.8	*****	66.4%	62.5%	55.3%	2.479	1.381			
	.000	1.219	2.162	2.668	24.0%	72.1%			
S/DEPTH=.7	*****	65.0%	61.1%	53.9%	2.135	1.219			
	.000	1.018	1.814	2.255	23.4%	69.1%			
S/DEPTH=.6	*****	63.6%	59.8%	52.7%	2.004	1.053			
	.000	.839	1.500	1.875	22.9%	66.6%			
S/DEPTH=.5	*****	62.4%	58.6%	51.6%	1.804	1.092			
	.000	.676	1.212	1.524	22.5%	64.6%			
S/DEPTH=.4	*****	61.4%	57.6%	50.7%	1.485	1.092			
	.000	.526	.946	1.194	22.1%	63.1%			
S/DEPTH=.3	*****	60.5%	56.8%	49.9%	1.176	.709			
	.000	.386	.696	.881	22.1%	63.1%			
S/DEPTH=.2	*****	59.8%	56.1%	49.3%	.875	.533			
	.000	.254	.458	.580	21.8%	61.9%			
S/DEPTH=.1	*****	59.3%	55.6%	48.8%	.580	.356			
	.000	.126	.227	.289	21.6%	61.1%			
S/DEPTH=.0	*****	*****	*****	48.6%	21.5%	*****			
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CASE 5=C

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	36.3%	.784	.687	.498	.318	.106	.175	.209	.216
		28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	.000	50.364	68.093	64.962	41.385	17.209	6.659	1.472	.000
S/DEPTH=1.4	*****	88.8%	83.6%	74.6%	37.1%	101.1%	463.2%	*****	*****
S/DEPTH=1.3	*****	100.0%							
S/DEPTH=1.2	*****	86.7%							
S/DEPTH=1.1	*****	36.118	59.780						
S/DEPTH=1.0	*****	85.0%	52.007	59.051	40.916				
S/DEPTH=.9	*****	81.3%	78.2%	72.0%	40.9%	17.712			
S/DEPTH=.8	*****	79.3%	76.2%	70.1%	40.9%	18.4%			
S/DEPTH=.7	*****	77.2%	74.1%	68.2%	40.7%	18.8%	7.523	1.643	.000
S/DEPTH=.6	*****	75.0%	72.0%	66.3%	40.4%	19.697	378.8%	*****	*****
S/DEPTH=.5	*****	72.9%	70.0%	64.4%	39.9%	19.697	324.2%	1.845	.000
S/DEPTH=.4	*****	70.8%	68.0%	62.7%	39.5%	20.367	285.0%	2.026	.000
S/DEPTH=.3	*****	68.9%	66.2%	61.1%	39.0%	20.874	258.3%	2.182	.000
S/DEPTH=.2	*****	67.3%	64.7%	59.8%	38.6%	21.79	235.5%	2.416	.000
S/DEPTH=.1	*****	66.0%	63.6%	58.9%	38.3%	21.249	220.6%	2.490	.000
S/DEPTH=.0	*****	65.2%	62.8%	58.2%	38.1%	21.798	210.7%	2.535	.000
	*****	65.0%	62.6%	58.0%	38.0%	21.831	205.0%	2.550	.000
	*****	65.0%	62.6%	58.0%	38.0%	21.831	203.1%	*****	*****

TABLE IV=DIMENSIONLESS	VERTICAL	ACCELERATION	COMPONENT FIELD...	DEFINED	IN EQUATION (24)			
THETA =	10.0	20.0	30.0	50.0	100.0	130.0	180.0	
ETA/HEIGHT=	.784	.687	.498	.310	.175	.209	.216	
	36.3%	28.3%	5.7%	=36.1%	=442.0%	50.3%	=131.9%	
SURFACE	=62.619	=45.440	=14.359	10.040	28.463	20.225	9.554	2.395
S/DEPTH#1.4	72.9%	63.7%	=5.6%	230.1%	125.0%	92.2%	3.9%	*****
S/DEPTH#1.0	=60.630	=45.437						*****
S/DEPTH#1.3	100.0%	100.0%						*****
S/DEPTH#1.2	=56.258	=43.887						*****
S/DEPTH#1.1	69.9%	62.4%						*****
S/DEPTH#1.0	=51.279	=41.190						*****
S/DEPTH#0.9	69.1%	62.4%						*****
S/DEPTH#0.8	=46.099	=37.861						*****
S/DEPTH#0.7	68.3%	62.3%						*****
S/DEPTH#0.6	=40.953	=34.224						*****
S/DEPTH#0.5	67.5%	62.0%						*****
S/DEPTH#0.4	=35.967	=30.477						*****
S/DEPTH#0.3	66.6%	61.4%						*****
S/DEPTH#0.2	=31.202	=26.736						*****
S/DEPTH#0.1	65.6%	60.8%						*****
S/DEPTH#0.0	=26.677	=23.065						*****
S/DEPTH#0.9	64.8%	60.1%						*****
S/DEPTH#0.8	=22.387	=19.497						*****
S/DEPTH#0.7	64.0%	59.5%						*****
S/DEPTH#0.6	=18.311	=16.040						*****
S/DEPTH#0.5	63.2%	58.9%						*****
S/DEPTH#0.4	=14.420	=12.690						*****
S/DEPTH#0.3	62.6%	58.4%						*****
S/DEPTH#0.2	=9.431	=6.132						*****
S/DEPTH#0.1	62.1%	58.0%						*****
S/DEPTH#0.0	=7.056	=6.245						*****
S/DEPTH#0.9	61.8%	57.7%						*****
S/DEPTH#0.8	=3.110	=3.110						*****
S/DEPTH#0.7	61.3%	57.0%						*****
S/DEPTH#0.6	*****	*****						*****
S/DEPTH#0.5	*****	*****						*****
S/DEPTH#0.4	*****	*****						*****
S/DEPTH#0.3	*****	*****						*****
S/DEPTH#0.2	*****	*****						*****
S/DEPTH#0.1	*****	*****						*****
S/DEPTH#0.0	*****	*****						*****

[illegible]

CASE 5=C

TABLE V1=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)									
THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0
ETA/HEIGHT=	36.3%	26.3%	16.3%	6.3%	3.3%	1.3%	0.3%	0.0%	0.0%
SURFACE	0.00	30.717	44.928	47.121	36.648	19.258	8.432	1.913	.000
S/DEPTH=1.4	.000	81.0%	74.4%	64.2%	29.0%	-69.6%	-284.8%	*****	*****
S/DEPTH=1.3	.000	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
S/DEPTH=1.2	.000	77.6%	72.7%	65.5%	50.0%	33.2%	18.7%	10.0%	5.0%
S/DEPTH=1.1	.000	75.8%	71.3%	62.2%	46.4%	30.2%	16.7%	8.7%	4.7%
S/DEPTH=1.0	.000	74.3%	69.9%	64.3%	43.3%	27.3%	15.3%	7.3%	3.3%
S/DEPTH=.9	.000	72.9%	68.4%	61.3%	38.9%	23.5%	12.5%	6.5%	2.5%
S/DEPTH=.8	.000	71.6%	66.7%	58.2%	34.2%	19.8%	10.8%	5.8%	1.8%
S/DEPTH=.7	.000	70.2%	65.3%	55.7%	30.5%	16.4%	8.4%	4.4%	1.4%
S/DEPTH=.6	.000	69.1%	64.2%	53.1%	26.8%	13.1%	6.1%	3.1%	1.1%
S/DEPTH=.5	.000	68.1%	63.2%	51.1%	23.2%	10.1%	4.1%	2.1%	0.1%
S/DEPTH=.4	.000	67.2%	62.3%	49.1%	20.1%	7.1%	2.1%	1.1%	0.1%
S/DEPTH=.3	.000	66.4%	61.5%	47.1%	17.1%	4.1%	1.1%	0.1%	0.1%
S/DEPTH=.2	.000	65.6%	60.7%	45.1%	14.1%	2.1%	0.1%	0.1%	0.1%
S/DEPTH=.1	.000	64.8%	59.9%	43.1%	11.1%	1.1%	0.1%	0.1%	0.1%
S/DEPTH=.0	.000	64.0%	59.1%	41.1%	8.1%	0.1%	0.1%	0.1%	0.1%

CASE 5=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.784	.667	.498	.318	.059	.106	.175	.209	.216
	36.3%	28.3%	5.7%	36.1%	442.0%	222.2%	50.3%	82.9%	131.9%
SURFACE	66.822	49.732	25.094	10.264	.713	.325	.1215	.1867	.1999
S/DEPTH=1.4	58.2%	46.0%	5.0%	88.8%	*****	*****	*****	*****	*****
	57.320	49.671							
S/DEPTH=1.3	100.0%	100.0%							
	43.924	38.439							
S/DEPTH=1.2	36.4%	30.1%							
	33.619	29.673	20.315						
S/DEPTH=1.1	31.0%	24.1%	.9%						
	25.635	22.796	15.959	8.619					
S/DEPTH=1.0	28.8%	20.2%	3.8%	63.2%					
	19.415	17.376	12.402	6.923	.692				
S/DEPTH=.9	23.0%	16.5%	6.5%	62.0%	*****				
	14.549	13.093	9.502	5.456	.617	.279			
S/DEPTH=.8	19.4%	13.1%	9.0%	61.2%	*****	*****			
	10.732	9.704	7.113	4.202	.528	.184	.925	.1540	.1669
S/DEPTH=.7	16.2%	10.1%	11.2%	60.6%	*****	*****	*****	*****	*****
	7.738	7.026	5.234	3.143	.431	.120	.682	.1170	.1274
S/DEPTH=.6	13.3%	7.3%	13.2%	*****	*****	*****	*****	*****	*****
	5.400	4.920	3.702	2.262	.334	.075	.485	.854	.933
S/DEPTH=.5	10.7%	4.9%	15.0%	*****	*****	*****	*****	*****	*****
	3.592	3.281	2.496	1.542	.241	.046	.327	.590	.646
S/DEPTH=.4	8.6%	*****	*****	*****	*****	*****	*****	*****	*****
	2.220	2.032	1.552	.973	.160	.026	.205	.376	.413
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	1.215	1.115	.856	.541	.092	.013	.113	.211	.232
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.530	.486	.375	.236	.042	.006	.050	.093	.103
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.131	.120	.093	.059	.010	.001	.012	.023	.026
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 5=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD....DEFINED IN EQUATION (28)											
THETA =											
ETA=HEIGHT=											
	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0		
	.784	.687	.498	.318	.059	.106	.175	.209	.216		
36.3%	28.3%	5.7%	-36.1%	-442.0%	222.2%	50.3%		-82.9%	-131.9%		
SURFACE	.000	27.223	35.011	32.026	19.830	8.722	3.516	.770	.000		
	*****	85.4%	77.8%	65.1%	18.5%	-106.3%	-348.7%	*****	*****		
S/DEPTH=1.4	.000	27.189									
	*****	100.0%									
S/DEPTH=1.3	.000	20.934									
	*****	81.0%									
S/DEPTH=1.2	.000	16.027	27.813								
	*****	78.9%	75.7%								
S/DEPTH=1.1	.000	12.180	21.192	25.968							
	*****	77.2%	74.1%	68.1%							
S/DEPTH=1.0	.000	9.167	16.277	20.088	18.383						
	*****	75.6%	72.5%	66.6%	40.1%						
S/DEPTH= .9	.000	6.811	12.215	15.303	14.560	8.108					
	*****	73.9%	70.9%	65.2%	39.9%	-52.2%					
S/DEPTH= .8	.000	4.974	9.002	11.630	11.259	6.554	2.925	.668	.000		
	*****	72.5%	69.4%	63.9%	39.6%	-46.5%	-275.0%	*****	*****		
S/DEPTH= .7	.000	3.548	6.473	8.319	8.448	5.109	2.332	.537	.000		
	*****	70.8%	68.0%	62.7%	39.2%	-41.9%	-255.7%	*****	*****		
S/DEPTH= .6	.000	2.449	4.500	5.845	6.094	3.806	1.772	.411	.000		
	*****	69.4%	66.7%	61.3%	39.0%	-38.3%	-240.4%	*****	*****		
S/DEPTH= .5	.000	1.612	2.980	3.806	4.164	2.672	1.264	.296	.000		
	*****	65.5%	63.5%	60.3%	38.8%	-35.4%	*****	*****	*****		
S/DEPTH= .4	.000	.987	1.834	2.421	2.629	1.724	.827	.194	.000		
	*****	64.5%	64.5%	59.6%	38.5%	*****	*****	*****	*****		
S/DEPTH= .3	.000	.536	1.000	1.328	1.463	.975	.473	.112	.000		
	*****	63.2%	63.2%	60.0%	38.5%	*****	*****	*****	*****		
S/DEPTH= .2	.000	.232	.435	.580	.645	.435	.212	.050	.000		
	*****	62.2%	62.2%	60.0%	38.5%	*****	*****	*****	*****		
S/DEPTH= .1	.000	.057	.107	.143	.160	.109	.053	.013	.000		
	*****	61.2%	61.2%	60.0%	38.5%	*****	*****	*****	*****		
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000		
	*****	60.0%	60.0%	60.0%	38.5%	*****	*****	*****	*****		

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA#	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.032	.058	.074	.074	.031	-.018	-.043	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.015	.015	.014	.012	.006	.003	-.010	-.007	-.000
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.001	.001	.001	.001	.000	-.001	-.001	-.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.597 (11.0%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.347 (44.2%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.386 (34.1%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.733 (58.9%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.663 (39.3%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.904 (80.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.769 (50.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.903 (45.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.240 (62.5%)

CASE 5=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      ,045059      STREAM FUNCTION      ,000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      ,008734      STREAM FUNCTION      ,000566

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR      ,079986      STREAM FUNCTION      ,000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR      ,015375      STREAM FUNCTION      ,001457

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR      ,359235      STREAM FUNCTION      ,540586

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR      ,081889      STREAM FUNCTION      ,290640
  
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ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 5=0

10TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2 * 2$

H WAVE HEIGHT G GRAVITATIONAL CONSTANT

T WAVE PERIOD X(N) NTH STREAM FUNCTION COEFFICIENT

DPT WATER DEPTH L WAVE LENGTH

PSI VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .038997 DPT/LO = .050000

H/DPT = .779945

L/LO = .627344 PSI/(G*H*T) = -.004386

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.396972=01	X(2)/(H*T*G) =	-.915802=02
X(3)/(H*T*G) =	-.223106=02	X(4)/(H*T*G) =	-.497691=03
X(5)/(H*T*G) =	-.114087=03	X(6)/(H*T*G) =	-.237810=04
X(7)/(H*T*G) =	-.602452=05	X(8)/(H*T*G) =	-.129692=05
X(9)/(H*T*G) =	-.547740=06	X(10)/(H*T*G) =	-.426991=06

CASE 5-D

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA = ETA/HEIGHT =	0 .839 40.4	10.0 20.0 30.0 40.4	50.0 75.0 100.0 130.0	180.0 180.0 180.0 180.0
S/DEPTH=1.6	14.072	8.793	4.993	2.733
S/DEPTH=1.5	51.7%	24.0%	-26.8%	-111.1%
S/DEPTH=1.4	12.932	19.7%	4.825	2.757
S/DEPTH=1.3	100.0%	7.551	4.621	-91.9%
S/DEPTH=1.2	11.192	14.4%	6.343	-84.5%
S/DEPTH=1.1	100.0%	8.322	4.423	2.775
S/DEPTH=1.0	30.7%	19.7%	25.8%	*****
S/DEPTH=.9	24.6%	14.4%	4.873	*****
S/DEPTH=.8	19.0%	9.7%	5.075	*****
S/DEPTH=.7	13.7%	5.2%	4.239	*****
S/DEPTH=.6	6.473	5.873	4.073	*****
S/DEPTH=.5	3.9%	5.973	3.925	*****
S/DEPTH=.4	5.560	5.139	3.798	*****
S/DEPTH=.3	5.220	4.859	3.690	*****
S/DEPTH=.2	4.45%	4.626	3.572	*****
S/DEPTH=.1	-7.8%	4.719	3.471	*****
S/DEPTH=.0	-10.9%	4.543	3.322	*****
S/DEPTH=.0	13.4%	4.411	3.1603	*****
S/DEPTH=.0	15.4%	4.319	3.005	*****
S/DEPTH=.0	16.8%	4.264	2.859	*****
S/DEPTH=.0	17.7%	4.246	2.771	*****
S/DEPTH=.0	18.0%	4.246	2.686	*****
S/DEPTH=.0	18.0%	4.246	2.606	*****
S/DEPTH=.0	18.0%	4.246	2.526	*****
S/DEPTH=.0	18.0%	4.246	2.446	*****
S/DEPTH=.0	18.0%	4.246	2.366	*****
S/DEPTH=.0	18.0%	4.246	2.286	*****
S/DEPTH=.0	18.0%	4.246	2.206	*****
S/DEPTH=.0	18.0%	4.246	2.126	*****
S/DEPTH=.0	18.0%	4.246	2.046	*****
S/DEPTH=.0	18.0%	4.246	1.966	*****
S/DEPTH=.0	18.0%	4.246	1.886	*****
S/DEPTH=.0	18.0%	4.246	1.806	*****
S/DEPTH=.0	18.0%	4.246	1.726	*****
S/DEPTH=.0	18.0%	4.246	1.646	*****
S/DEPTH=.0	18.0%	4.246	1.566	*****
S/DEPTH=.0	18.0%	4.246	1.486	*****
S/DEPTH=.0	18.0%	4.246	1.406	*****
S/DEPTH=.0	18.0%	4.246	1.326	*****
S/DEPTH=.0	18.0%	4.246	1.246	*****
S/DEPTH=.0	18.0%	4.246	1.166	*****
S/DEPTH=.0	18.0%	4.246	1.086	*****
S/DEPTH=.0	18.0%	4.246	1.006	*****
S/DEPTH=.0	18.0%	4.246	0.926	*****
S/DEPTH=.0	18.0%	4.246	0.846	*****
S/DEPTH=.0	18.0%	4.246	0.766	*****
S/DEPTH=.0	18.0%	4.246	0.686	*****
S/DEPTH=.0	18.0%	4.246	0.606	*****
S/DEPTH=.0	18.0%	4.246	0.526	*****
S/DEPTH=.0	18.0%	4.246	0.446	*****
S/DEPTH=.0	18.0%	4.246	0.366	*****
S/DEPTH=.0	18.0%	4.246	0.286	*****
S/DEPTH=.0	18.0%	4.246	0.206	*****
S/DEPTH=.0	18.0%	4.246	0.126	*****
S/DEPTH=.0	18.0%	4.246	0.046	*****
S/DEPTH=.0	18.0%	4.246	0.000	*****

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TABLE 1: DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	40.4%	39	582	363	207	012	096	137	161
		15.4%	29.4%	109.2%	****	234.6%	36.6%	145.3%	210.4%
SURFACE	.000	4.251	4.542	3.956	2.403	.990	.359	.081	.000
	*****	81.3%	66.1%	44.5%	29.2%	241.4%	695.6%	****	*****
S/DEPTH#1.6	.000								

S/DEPTH#1.5	.000								

S/DEPTH#1.4	.000								

S/DEPTH#1.3	.000								

S/DEPTH#1.2	.000								

S/DEPTH#1.1	.000								

S/DEPTH#1.0	.000								

S/DEPTH# .9	.000								

S/DEPTH# .8	.000								

S/DEPTH# .7	.000								

S/DEPTH# .6	.000								

S/DEPTH# .5	.000								

S/DEPTH# .4	.000								

S/DEPTH# .3	.000								

S/DEPTH# .2	.000								

S/DEPTH# .1	.000								

S/DEPTH# .0	.000								

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 40.4%	10.0 15.4%	20.0 29.4%	30.0 40.9%	50.0 61.2%	75.0 90.6%	100.0 120.0%	130.0 156.0%	180.0 210.4%
SURFACE	.000	81.071	70.719	53.824	29.576	10.511	2.928	.501	.000
S/DEPTH#1.6	.000	93.3%	84.8%	70.4%	14.4%	225.3%	*****	*****	*****
S/DEPTH#1.5	.000								
S/DEPTH#1.4	.000	71.867							
S/DEPTH#1.3	.000	92.5%							
S/DEPTH#1.2	.000	57.600							
S/DEPTH#1.1	.000	91.0%							
S/DEPTH#1.0	.000	46.908							
S/DEPTH# .9	.000	89.3%							
S/DEPTH# .8	.000	38.451							
S/DEPTH# .7	.000	67.6%							
S/DEPTH# .6	.000	31.859							
S/DEPTH# .5	.000	86.0%							
S/DEPTH# .4	.000	26.703							
S/DEPTH# .3	.000	84.0%							
S/DEPTH# .2	.000	81.9%							
S/DEPTH# .1	.000	19.484							
S/DEPTH# .0	.000	79.7%							
S/DEPTH# .9	.000	28.777							
S/DEPTH# .8	.000	75.2%							
S/DEPTH# .7	.000	32.124							
S/DEPTH# .6	.000	68.7%							
S/DEPTH# .5	.000	65.1%							
S/DEPTH# .4	.000	31.321							
S/DEPTH# .3	.000	71.1%							
S/DEPTH# .2	.000	26.102							
S/DEPTH# .1	.000	75.3%							
S/DEPTH# .0	.000	13.617							
S/DEPTH# .9	.000	73.3%							
S/DEPTH# .8	.000	12.545							
S/DEPTH# .7	.000	71.3%							
S/DEPTH# .6	.000	21.379							
S/DEPTH# .5	.000	66.7%							
S/DEPTH# .4	.000	70.2%							
S/DEPTH# .3	.000	11.385							
S/DEPTH# .2	.000	69.3%							
S/DEPTH# .1	.000	11.245							
S/DEPTH# .0	.000	69.0%							

TABLE 1 (DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24))					
THETA	ETA/HEIGHT	ACCELERATION COMPONENT FIELD	DEFINITION IN EQUATION (24)		
0	10.0	20.0	75.0	100.0	130.0
40.4%	15.4%	25.4%	100.2%	234.6%	36.6%
				0.96	0.137
				0.12	0.096
				0.207	0.137

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TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.839	.562	.363	.207	.012	.096	.137	.156	.161
	40.4%	15.4%	29.4%	109.2%	*****	234.6%	36.6%	145.3%	210.4%
SURFACE	85.518	45.059	20.597	8.534	.538	-.481	1.529	-2.257	-2.470
		5.9%	83.9%	265.6%	*****	*****	*****	*****	*****
S/DEPTH=1.6	49.6%								
	75.630								
S/DEPTH=1.5	61.140								
	100.0%								
S/DEPTH=1.4	50.147	41.098							
	12.3%	3.1%							
S/DEPTH=1.3	41.596	34.811							
	4.0%	1.3%							
S/DEPTH=1.2	34.792	29.800	18.594						
	2.9%	17.3%	70.0%						
S/DEPTH=1.1	29.264	25.225	16.363	6.071					
	9.1%	22.7%	12.2%	196.6%					
S/DEPTH=1.0	24.684	21.500	14.319	7.305	.538				
	14.7%	27.7%	74.5%	190.6%	*****	.456			
S/DEPTH=.9	20.820	18.866	12.844	6.534	.529	*****	1.342	-2.052	-2.256
	19.6%	32.1%	76.7%	185.9%	*****	*****	*****	*****	*****
S/DEPTH=.8	17.500	15.474	10.718	5.767	.509	.367	1.1791	1.791	1.969
	24.0%	36.0%	78.7%	192.2%	*****	*****	1.151	*****	*****
S/DEPTH=.7	14.600	12.979	9.120	5.009	.478	.293	*****	*****	*****
	27.7%	39.4%	80.6%	179.3%	*****	*****	.989	1.531	1.684
S/DEPTH=.6	12.022	10.733	7.830	4.253	.435	.232	*****	*****	*****
	31.1%	42.2%	82.2%	*****	*****	*****	.796	1.273	1.401
S/DEPTH=.5	9.992	8.682	6.229	3.529	.380	.180	*****	*****	*****
	33.6%	44.7%	83.6%	*****	*****	*****	.629	1.017	1.119
S/DEPTH=.4	7.551	6.781	4.901	2.897	.316	.136	*****	*****	*****
	35.8%	46.8%	84.7%	*****	*****	*****	.467	.761	.838
S/DEPTH=.3	5.349	4.993	3.628	2.095	.244	.098	*****	*****	*****
	37.4%	48.1%	85.7%	*****	*****	*****	.309	.507	.558
S/DEPTH=.2	3.647	3.286	2.397	1.392	.166	.063	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.154	.253	.279
S/DEPTH=.1	1.808	1.630	1.192	.895	.084	.031	*****	*****	*****
	*****	*****	*****	*****	*****	*****	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 5=D

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .339 40.4%	10.0 15.4%	20.0 30.0 36.3 52.0.4%	30.0 50.0 75.0 100.0	50.0 75.0 100.0	75.0 100.0	100.0 130.0 180.0
DEPTH	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100	0 10 20 30 40 50 60 70 80 90 100
SURFACE	.000	40.665	45.107	41.273	27.928	12.707	4.834
S/DEPTH#1.6	.000	86.0%	75.0%	59.7%	7.3%	-157.6%	-567.6%
S/DEPTH#1.5	.000	.000	.000	.000	.000	.000	.000
S/DEPTH#1.4	.000	36.553	39.566	38.047	27.643	12.441	4.521
S/DEPTH#1.3	.000	30.100	33.717	33.135	28.6%	109.8%	505.0%
S/DEPTH#1.2	.000	24.888	28.644	28.633	24.702	103.0%	505.0%
S/DEPTH#1.1	.000	20.637	24.228	24.228	21.796	103.0%	505.0%
S/DEPTH#1.0	.000	17.136	20.644	20.644	18.933	10.081	477.9%
S/DEPTH# .9	.000	14.218	17.136	17.136	16.933	97.3%	477.9%
S/DEPTH# .8	.000	11.759	14.218	14.218	13.345	8.774	456.7%
S/DEPTH# .7	.000	9.657	11.759	11.759	11.116	8.774	456.7%
S/DEPTH# .6	.000	7.836	9.657	9.657	9.056	8.774	456.7%
S/DEPTH# .5	.000	6.238	7.836	7.836	7.403	7.403	456.7%
S/DEPTH# .4	.000	4.807	6.238	6.238	5.960	5.960	440.0%
S/DEPTH# .3	.000	3.502	4.807	4.807	4.617	4.617	440.0%
S/DEPTH# .2	.000	2.287	3.502	3.502	2.978	2.978	427.5%
S/DEPTH# .1	.000	1.129	2.287	2.287	1.928	1.928	427.5%
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000

CASE 5=D

TABLE VII DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 .039 40.4%	10.0 .502 15.4%	20.0 .363 29.4%	30.0 .207 109.2%	50.0 .012 *****	75.0 .096 234.6%	100.0 .137 36.8%	130.0 .154 145.3%	160.0 .161 210.4%
SURFACE	99.966	41.754	14.986	5.059	.196	.271	.718	.098	-1.087
S/DEPTH#1.6	66.2%	22.3%	990.6%	353.6%	*****	*****	*****	*****	*****
S/DEPTH#1.5	100.0%								
S/DEPTH#1.4	100.0%								
S/DEPTH#1.3	48.411	36.128	12.498						
S/DEPTH#1.2	25.333	16.1%	8.4%						
S/DEPTH#1.1	18.947	10.071	9.932	4.535					
S/DEPTH#1.0	14.191	12.196	7.784	3.731	.196				
S/DEPTH# .9	10.474	9.099	6.001	2.999	.188				
S/DEPTH# .8	11.9%	25.0%	72.5%	*****	*****	.248	.559	.826	.907
S/DEPTH# .7	5.471	4.832	3.333	1.778	.148	.117	.416	.630	.692
S/DEPTH# .6	3.793	3.370	2.364	1.293	.120	.077	.298	.441	.507
S/DEPTH# .5	2.509	2.241	1.593	.889	.090	.048	.202	.319	.351
S/DEPTH# .4	1.344	1.384	.995	.564	.061	.029	.127	.204	.224
S/DEPTH# .3	.843	.758	.549	.315	.036	.019	.071	.114	.126
S/DEPTH# .2	.367	.330	.241	.139	.016	.006	.031	.051	.056
S/DEPTH# .1	.091	.082	.060	.035	.004	.002	.008	.013	.014
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

SURFACE	.000	39.848	35.397	27.096	14.417	5.553	1.930	.428	.000
S/DEPTH#1.6	*****	89.3%	76.6%	56.1%	=18.4%	=236.6%	*****	*****	*****
S/DEPTH#1.5	*****								
S/DEPTH#1.4	*****	33.978							
S/DEPTH#1.3	*****	87.5%							
S/DEPTH#1.2	*****	25.254							
S/DEPTH#1.1	*****	85.5%							
S/DEPTH#1.0	*****	16.730	28.514						
S/DEPTH# .9	*****	83.9%	78.7%						
S/DEPTH# .8	*****	82.2%	77.2%	23.448					
S/DEPTH# .7	*****	80.4%	75.6%	18.286					
S/DEPTH# .6	*****	78.7%	74.1%	67.9%	14.131				
S/DEPTH# .5	*****	77.0%	72.6%	66.8%	27.2%				
S/DEPTH# .4	*****	75.4%	71.2%	65.7%	11.336				
S/DEPTH# .3	*****	73.8%	69.9%	65.7%	28.0%				
S/DEPTH# .2	*****	72.6%	68.5%	64.6%	5.310				
S/DEPTH# .1	*****	70.0%	65.9%	63.5%	=126.8%				
S/DEPTH# .0	*****	63.94	63.5%	62.5%	=115.4%				
S/DEPTH# .7	*****	63.94	63.5%	62.5%	8.866	4.348	1.665	.386	.000
S/DEPTH# .6	*****	63.94	63.5%	62.5%	28.51	3.428	1.356	.320	.000
S/DEPTH# .5	*****	63.94	63.5%	62.5%	29.0%	=106.2%	*****	*****	.000
S/DEPTH# .4	*****	63.94	63.5%	62.5%	4.886	2.580	1.045	.249	.000
S/DEPTH# .3	*****	63.94	63.5%	62.5%	29.3%	=98.9%	*****	*****	.000
S/DEPTH# .2	*****	63.94	63.5%	62.5%	3.362	1.826	.754	.180	.000
S/DEPTH# .1	*****	63.94	63.5%	62.5%	29.5%	*****	*****	*****	.000
S/DEPTH# .0	*****	63.94	63.5%	62.5%	2.134	1.186	.497	.119	.000
S/DEPTH# .3	*****	63.94	63.5%	62.5%	29.7%	*****	*****	*****	.000
S/DEPTH# .2	*****	63.94	63.5%	62.5%	1.193	.673	.286	.069	.000
S/DEPTH# .1	*****	63.94	63.5%	62.5%	*****	*****	*****	*****	.000
S/DEPTH# .0	*****	63.94	63.5%	62.5%	.327	.302	.129	.031	.000
S/DEPTH# .1	*****	63.94	63.5%	62.5%	*****	*****	*****	*****	.000
S/DEPTH# .0	*****	63.94	63.5%	62.5%	.131	.076	.033	.008	.000
S/DEPTH# .0	*****	63.94	63.5%	62.5%	*****	*****	*****	*****	.000
S/DEPTH# .0	*****	63.94	63.5%	62.5%	.000	.000	.000	.000	.000

CASE 5-D

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	40.4	39.582	36.3	207	.012	234.6	36.6	156	161
	15.4	29.4	-109.2	*****	*****	234.6	36.6	145.3	210.4
SURFACE	1.606	1.189	.739	.427	.027	.190	.276	.316	.333
S/DEPTH#1.6	41.0	21.4	-20.7	-93.0	*****	239.9	48.5	-134.6	-199.0
S/DEPTH#1.5	1.569								
S/DEPTH#1.4	100.0								
S/DEPTH#1.3	1.482								
S/DEPTH#1.2	100.0								
S/DEPTH#1.1	1.387	1.167							
S/DEPTH#1.0	31.6	20.0							
S/DEPTH# .9	28.2	18.1							
S/DEPTH# .8	24.8	16.0	.746						
S/DEPTH# .7	21.3	13.6	1.013	.446					
S/DEPTH# .6	1.057	1.964	.736	.469	.031				
S/DEPTH# .5	17.9	1.0	-12.3	-64.8	*****	249.9	54.7	-135.2	-201.0
S/DEPTH# .4	1.996	1.918	.723	.485	.070	.185	260	351	329
S/DEPTH# .3	14.6	8.4	-12.1	-56.8	*****	270.8	58.4	-136.0	-201.0
S/DEPTH# .2	1.943	.878	.709	.495	.102	.165	260	351	329
S/DEPTH# .1	11.4	5.9	-12.4	-51.1	-47.1	.165	260	351	329
S/DEPTH# .0	8.98	.842	.695	.502	.129	.147	260	351	329
S/DEPTH# .0	8.5	3.5	-12.9	-47.0	-35.4	294.0	58.4	-136.0	-201.0
S/DEPTH# .0	8.60	1.81	.681	.505	.150	.131	253	313	329
S/DEPTH# .0	5.8	1.3	-13.6	-44.1	-28.6	319.2	61.7	-129.5	-201.3
S/DEPTH# .0	8.29	.786	.669	.507	.167	.118	247	312	328
S/DEPTH# .0	3.5	.7	-14.3	-42.0	-24.1	345.6	64.6	-124.2	-195.2
S/DEPTH# .0	1.5	.765	.659	.508	.181	.107	242	311	328
S/DEPTH# .0	1.5	5.3	-14.9	-40.5	-21.6	371.9	66.9	-119.8	-190.5
S/DEPTH# .0	7.85	.749	.650	.508	.190	.099	238	310	327
S/DEPTH# .0	.0	3.6	-15.5	-39.5	-19.8	396.2	68.8	-116.5	-186.4
S/DEPTH# .0	.771	.738	.644	.508	.197	.093	235	309	327
S/DEPTH# .0	1.2	-4.6	-38.6	-38.6	-18.2	416.2	70.1	-114.2	-183.7
S/DEPTH# .0	1.763	.731	.641	.508	.201	.089	233	309	326
S/DEPTH# .0	1.9	5.2	-16.2	-38.4	-18.8	429.4	70.9	-112.8	-182.1
S/DEPTH# .0	.761	.729	.640	.508	.203	.088	232	309	326
S/DEPTH# .0	5.4	5.4	-16.3	-38.3	-18.7	434.0	71.2	-112.3	-181.5

CASE 9=0

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.074	.132	.164	.151	.058	.032	.071	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.026	.025	.024	.021	.012	.004	.016	.013	.002
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.036	.012	.007	.007	.001	.001	.001	.002	.005

CASE 5-D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.627 (15.3%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.241 (=107.2%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.285 (=85.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.527 (=95.6%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.488 (=92.8%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.927 (1.4%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.568 (=77.5%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.654 (=101.9%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.166 (=128.9%)

CASE 5=0

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR		
DEFINED IN EQUATION (46)	.090710	STREAM FUNCTION
LINEAR		.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR		
DEFINED IN EQUATION (47)	.014971	STREAM FUNCTION
LINEAR		.005338
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR		
DEFINED IN EQUATION (46)	.169592	STREAM FUNCTION
LINEAR		.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR		
DEFINED IN EQUATION (47)	.025963	STREAM FUNCTION
LINEAR		.036093
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER		
DEFINED IN EQUATION (48)	.499171	STREAM FUNCTION
LINEAR		.874734
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER		
DEFINED IN EQUATION (49)	.100259	STREAM FUNCTION
LINEAR		.241770

CASE 6a

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PBI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .01812 DPT/LO = .10002

H/DPT = .18315

L/LO = .718164 PBI/(G*H*T) = -.003155

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.555443E-01 X(2)/(H*T*G) = -.168746E-02

X(3)/(H*T*G) = -.300411E-04

CASE 66A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 12.4%	10.0 11.7%	20.0 9.0%	30.0 5.5%	50.0 2.9%	75.0 1.144	100.0 39.9%	130.0 6.5%	180.0 16.5%
SURFACE	5.293	5.168	4.805	4.241	2.719	.610	1.1213	3.064	3.645
8/DEPTH: 1.1	11.5%	10.8%	8.5%	4.9%	0.7%	90.6%	37.5%	6.8%	14.9%
8/DEPTH: 1.0	5.274	5.159	4.780	3.998	2.638	.612	1.129	3.008	3.609
8/DEPTH: .9	11.0%	10.4%	8.0%	4.1%	7.9%	87.2%	35.9%	6.1%	15.4%
8/DEPTH: .8	4.844	4.650	4.177	3.741	2.499	72.6%	31.030	5.8%	13.4%
8/DEPTH: .7	8.3%	7.8%	6.3%	3.518	2.376	.632	33.6%	5.4%	12.4%
8/DEPTH: .6	4.252	4.167	3.917	3.1%	2.269	.635	31.4%	5.2%	12.1%
8/DEPTH: .5	7.4%	6.9%	5.5%	3.327	2.077	.635	29.9%	4.8%	11.7%
8/DEPTH: .4	4.003	3.925	3.65	2.7%	1.77	.635	27.5%	4.5%	11.3%
8/DEPTH: .3	6.6%	6.2%	4.9%	3.166	1.55	.634	25.9%	4.2%	10.9%
8/DEPTH: .2	3.794	3.721	3.508	2.3%	1.30	.634	24.0%	4.0%	10.6%
8/DEPTH: .1	5.8%	5.5%	4.3%	2.0%	1.10	.634	22.3%	3.8%	10.3%
8/DEPTH: .0	3.621	3.553	3.33	2.924	2.037	.632	20.7%	3.6%	10.0%
8/DEPTH: .9	5.12%	4.9%	3.8%	1.7%	1.980	.630	19.4%	3.4%	9.7%
8/DEPTH: .8	3.483	3.419	3.29	1.5%	1.854	.628	18.1%	3.2%	9.4%
8/DEPTH: .7	4.7%	4.4%	3.4%	1.3%	1.727	.627	16.8%	3.0%	9.1%
8/DEPTH: .6	3.377	3.316	3.1%	1.1%	1.600	.627	15.5%	2.8%	8.8%
8/DEPTH: .5	4.3%	4.0%	3.0%	0.9%	1.473	.626	14.2%	2.6%	8.5%
8/DEPTH: .4	3.303	3.243	3.0%	0.7%	1.346	.626	13.0%	2.4%	8.2%
8/DEPTH: .3	4.0%	3.7%	2.9%	0.5%	1.219	.626	11.8%	2.2%	7.9%
8/DEPTH: .2	3.259	3.200	2.7%	0.4%	1.092	.626	10.6%	2.0%	7.6%
8/DEPTH: .1	3.8%	3.6%	2.7%	0.3%	.965	.626	9.4%	1.8%	7.3%
8/DEPTH: .0	3.244	3.196	2.7%	0.2%	.838	.626	8.2%	1.6%	7.0%
	3.6%	3.5%	2.7%	0.1%	.711	.626	7.0%	1.4%	6.7%

TABLE 1: DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)

DEPTH	0	10	20	30	40	50	75	100	130	160
ETA/HEIGHT	0	0	0	0	0	0	0	0	0	0
12.4%	11.7%	11.7%	9.4%	5.3%	4.9%	2.9%	112.0%	39.9%	6.5%	16.5%
SURFACE	.000	.630	1.595	2.240	3.056	3.203	2.666	1.363	.000	.000
8/DEPTH 1.1	.000	26.7%	25.3%	22.6%	15.5%	2.3%	12.0%	35.4%	.000	.000
8/DEPTH 1.0	.000	26.8%	23.2%	21.5%	15.5%	3.0%	2.4%	1.3%	.000	.000
8/DEPTH .9	.000	26.8%	21.2%	20.2%	14.6%	3.7%	10.0%	35.3%	.000	.000
8/DEPTH .8	.000	22.9%	19.1%	19.1%	13.0%	3.4%	10.2%	33.2%	.000	.000
8/DEPTH .7	.000	21.6%	20.6%	19.1%	13.0%	3.4%	10.2%	33.2%	.000	.000
8/DEPTH .6	.000	20.6%	19.1%	18.2%	13.1%	3.1%	9.9%	31.4%	.000	.000
8/DEPTH .5	.000	19.9%	19.0%	17.4%	12.4%	2.9%	9.5%	30.0%	.000	.000
8/DEPTH .4	.000	19.2%	18.3%	16.7%	11.9%	2.6%	9.2%	28.7%	.000	.000
8/DEPTH .3	.000	18.5%	17.7%	16.2%	11.5%	2.4%	8.9%	27.8%	.000	.000
8/DEPTH .2	.000	18.1%	17.2%	15.8%	11.2%	2.3%	8.7%	27.0%	.000	.000
8/DEPTH .1	.000	17.7%	16.9%	15.5%	11.0%	2.1%	8.6%	26.5%	.000	.000
8/DEPTH .0	.000	17.4%	16.6%	15.3%	10.8%	2.0%	8.5%	26.0%	.000	.000

CASE 6=A

TABLE 11-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0	10.0	20.0	30.0	40.0	50.0	60.0	75.0	100.0	130.0	160.0
12.4%	571	558	519	458	398	293	161	0.61	0.14	0.36	0.429
	11.7%	11.7%	9.4%	5.5%	5.5%	9.6%	-112.0%	39.9%	6.5%	6.5%	16.5%
SURFACE	.000	7.763	14.875	20.810	28.052	28.760	23.512	11.490	.000	.000	.000
	*****	37.5%	35.8%	33.0%	23.9%	6.6%	16.5%	55.6%	*****	*****	*****
8/DEPTH 1.1	.000	7.744	13.429	19.086	26.711	28.537	22.787	11.463	.000	.000	.000
	*****	37.4%	33.0%	30.7%	23.1%	7.2%	14.3%	53.6%	*****	*****	*****
8/DEPTH 1.0	.000	6.944	12.154	17.318	24.491	26.680	21.877	11.366	.000	.000	.000
	*****	34.3%	30.5%	26.4%	21.3%	6.7%	12.6%	46.7%	*****	*****	*****
8/DEPTH .9	.000	6.267	10.5%	15.825	21.597	25.060	21.061	11.253	.000	.000	.000
	*****	31.8%	28.2%	24.1%	19.6%	6.2%	11.2%	41.1%	*****	*****	*****
8/DEPTH .8	.000	5.698	11.072	14.574	20.997	23.664	20.346	11.134	.000	.000	.000
	*****	29.4%	25.9%	21.5%	18.0%	5.7%	10.0%	36.8%	*****	*****	*****
8/DEPTH .7	.000	5.224	10.167	13.538	19.662	22.479	19.736	11.019	.000	.000	.000
	*****	27.1%	23.8%	20.2%	16.9%	5.3%	9.0%	32.9%	*****	*****	*****
8/DEPTH .6	.000	4.832	9.420	12.695	18.568	21.494	19.234	10.915	.000	.000	.000
	*****	24.9%	21.3%	18.0%	14.1%	4.9%	8.2%	29.9%	*****	*****	*****
8/DEPTH .5	.000	4.514	8.813	12.051	17.698	20.700	18.643	10.829	.000	.000	.000
	*****	23.0%	20.5%	18.0%	14.1%	4.6%	7.6%	27.8%	*****	*****	*****
8/DEPTH .4	.000	4.263	8.333	11.521	17.035	20.091	18.562	10.764	.000	.000	.000
	*****	21.3%	20.5%	17.8%	14.2%	4.3%	7.1%	26.2%	*****	*****	*****
8/DEPTH .3	.000	4.073	7.970	11.167	16.570	19.660	18.394	10.725	.000	.000	.000
	*****	20.1%	19.2%	16.9%	14.1%	4.1%	6.9%	25.3%	*****	*****	*****
8/DEPTH .2	.000	3.941	7.716	10.937	16.294	19.403	18.317	10.711	.000	.000	.000
	*****	19.1%	18.2%	16.4%	14.2%	4.0%	6.6%	25.0%	*****	*****	*****
8/DEPTH .1	.000	3.862	7.565	10.888	16.202	19.317	18.338	10.711	.000	.000	.000
	*****	18.3%	17.5%	16.2%	14.1%	4.0%	6.6%	25.0%	*****	*****	*****
8/DEPTH .0	.000	3.836	17.5%	16.2%	14.1%	4.0%	6.6%	25.0%	.000	.000	.000
	*****	16.3%	17.5%	16.2%	14.1%	4.0%	6.6%	25.0%	.000	.000	.000

CASE 6=A

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 12.4%	10.0 11.7%	20.0 9.4%	30.0 5.5%	50.0 4.58	75.0 .061	100.0 39.9%	130.0 180.0	1429 -16.5%
	12.4%	11.7%	9.4%	5.5%	4.58	.061	39.9%	180.0	-16.5%
SURFACE	=26.205	=25.246	=22.512	=18.398	=8.111	3.604	10.584	13.457	13.229
8/DEPTH#1.1	=26.1%	24.7%	20.3%	11.9%	=37.0%	180.5%	47.6%	=17.3%	=46.8%
8/DEPTH#1.0	=25.7%	24.5%	=22.159	=16.681	=7.809	3.489	9.357	12.884	12.907
8/DEPTH# .9	=22.899	22.5%	17.546	11.1%	=33.5%	181.7%	47.9%	=17.5%	=48.7%
8/DEPTH# .8	=19.079	21.4%	17.8%	10.7%	=29.3%	201.2%	7.865	11.252	11.412
8/DEPTH# .7	=17.267	=16.744	=15.226	=14.857	=6.476	1.898	47.8%	=16.3%	=45.6%
8/DEPTH# .6	=14.734	20.5%	17.0%	10.3%	=26.0%	224.9%	46.546	9.689	9.933
8/DEPTH# .5	20.6%	19.6%	16.3%	10.0%	=5.727	1.366	46.6%	=15.3%	=42.9%
8/DEPTH# .4	=12.355	=12.000	=10.907	=9.348	=4.946	.964	5.369	8.187	8.472
8/DEPTH# .3	19.8%	18.8%	15.7%	9.6%	=21.5%	*****	46.0%	=14.4%	=40.7%
8/DEPTH# .2	=10.106	=9.821	=8.992	=7.692	=4.143	.664	4.308	6.739	7.028
8/DEPTH# .1	19.1%	18.2%	15.1%	9.4%	=20.0%	*****	45.4%	=13.7%	=38.9%
	18.6%	17.6%	14.7%	9.1%	=3.326	.444	3.341	5.337	5.601
	=5.900	=5.738	=5.268	=4.529	=18.8%	*****	45.0%	=13.2%	=37.4%
	18.1%	17.2%	14.3%	8.9%	=2.500	.283	2.445	3.970	4.187
	=3.900	=3.794	=3.486	=3.001	=17.0%	.166	1.602	2.632	2.785
	17.8%	16.9%	14.1%	8.8%	=17.3%	*****	44.3%	=12.5%	=35.6%
	=1.940	=1.887	=1.735	=1.495	=8.35	.076	.792	1.311	1.391
	17.6%	16.7%	13.9%	8.7%	*****	*****	*****	=12.3%	=35.1%
	=0.00	=0.00	=0.00	=0.00	=0.00	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 6=A

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 .571 12.4%	10.0 .558 1.7%	20.0 .519 9.4%	30.0 .458 5.5%	50.0 .293 9.6%	75.0 .061 112.0%	100.0 .144 30.9%	130.0 .360 60.5%	180.0 .429 16.5%
SURFACE	17.123	16.392	14.357	11.437	5.096	.401	.745	.6.140	.9.072
S/DEPTH#1.1	14.5%	13.9%	10.7%	5.7%	13.0%	*****	*****	.9.2%	.21.7%
S/DEPTH#1.0	16.996	16.336	12.314	10.014	4.711	.397	.645	.5.825	.8.790
S/DEPTH# .9	13.8%	13.2%	10.443	8.519	4.052	.358	.528	.9.7%	.23.6%
S/DEPTH# .8	14.420	13.870	10.79%	4.1%	3.458	.319	.431	.4.966	.7.544
S/DEPTH# .7	11.6%	10.9%	7.3%	3.7%	2.919	.279	.431	.4.189	.6.399
S/DEPTH# .6	12.202	11.743	7.361	6.033	2.01%	.238	.348	.9.0%	.21.5%
S/DEPTH# .5	10.67%	10.0%	6.7%	3.3%	2.026	.238	.348	.5.478	.5.338
S/DEPTH# .4	9.9%	9.3%	6.066	4.080	1.969	.198	.276	.8.6%	.20.6%
S/DEPTH# .3	8.569	8.254	5.474	3.0%	1.969	.198	.276	.8.4%	.19.9%
S/DEPTH# .2	7.9%	7.7%	5.9%	2.6%	1.542	.150	.212	.8.4%	.19.9%
S/DEPTH# .1	4.419	4.260	3.009	3.135	.9.1%	.118	.154	.8.2%	.19.3%
S/DEPTH# .0	3.244	3.128	2.798	2.505	1.137	.118	.154	.8.2%	.19.3%
S/DEPTH# .2	7.6%	7.0%	5.4%	2.5%	.8.9%	.079	.100	.8.1%	.18.8%
S/DEPTH# .1	2.130	2.054	1.838	1.515	.749	.079	.100	.8.1%	.18.8%
S/DEPTH# .0	7.4%	6.9%	5.2%	2.4%	*****	.079	.100	.8.1%	.18.8%
S/DEPTH# .0	7.058	1.018	.911	.751	.372	.079	.100	.8.1%	.18.8%
S/DEPTH# .0	7.3%	6.8%	5.1%	*****	*****	.079	.100	.8.1%	.18.8%
S/DEPTH# .0	7.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

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TABLE VII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

ETA/HEIGHT	871	858	819	5.53	9.93	112.0%	130.0	180.0
THETA	12.4%	11.7%	9.4%	5.3%	9.6%	112.0%	130.0	180.0
W	0	10.0	20.0	30.0	50.0	75.0	100.0	142.9
SURFACE	.000	3.438	6.563	9.126	12.120	12.229	9.931	.000
S/DEPTH#1.1	*****	31.3%	29.6%	26.7%	18.0%	3.0%	-14.2%	*****
S/DEPTH#1.0	*****	31.0%	5.155	7.383	10.610	11.907	8.336	.000
S/DEPTH# .9	*****	27.6%	3.040	5.655	8.179	9.284	10.7%	.000
S/DEPTH# .8	*****	25.0%	2.853	4.247	6.178	7.083	8.438	.000
S/DEPTH# .7	*****	24.4%	2.514	21.7%	16.1%	5.1%	9.8%	.000
S/DEPTH# .6	*****	23.0%	1.105	3.107	4.544	5.258	4.828	.000
S/DEPTH# .5	*****	21.8%	1.521	20.4%	15.2%	4.8%	5.1%	.000
S/DEPTH# .4	*****	20.8%	1.019	19.3%	14.3%	3.759	3.482	.000
S/DEPTH# .3	*****	19.0%	1.68%	1.472	13.6%	2.550	8.3%	.000
S/DEPTH# .2	*****	17.0%	.634	16.4%	11.1%	4.4%	6.0%	.000
S/DEPTH# .1	*****	15.0%	.178	17.6%	13.1%	1.600	1.503	.000
S/DEPTH# .0	*****	12.4%	.078	.504	12.6%	4.2%	7.6%	.000
	*****	11.7%	.152	*****	12.6%	4.1%	8.3%	.000
	*****	10.0%	.038	.221	.328	.390	.369	.000
	*****	8.7%	.019	.055	.081	.097	.092	.000
	*****	7.5%	.000	.000	.000	.000	.000	.000
	*****	6.3%	.000	.000	.000	.000	.000	.000
	*****	5.1%	.000	.000	.000	.000	.000	.000
	*****	4.0%	.000	.000	.000	.000	.000	.000
	*****	3.0%	.000	.000	.000	.000	.000	.000
	*****	2.0%	.000	.000	.000	.000	.000	.000
	*****	1.0%	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 12.4%	.571 11.7%	10.0 11.7%	20.0 9.4%	30.0 5.3%	50.0 -9.6%	75.0 -11.2%	100.0 -14.4%	130.0 -6.5%	180.0 -16.5%
SURFACE	1.142	1.115	1.037	1.037	.916	.586	.122	.289	.720	.858
S/DEPTH=1.1	11.5%	10.8%	8.7%	8.7%	5.1%	-8.6%	-100.3%	35.6%	-5.6%	-14.5%
S/DEPTH=1.0	11.2%	10.7%								
S/DEPTH=.9	1.060	1.038	.973	.973	.869	.573	.123	.266	.705	.849
S/DEPTH=.8	9.7%	9.42%	7.5%	7.5%	4.5%	-7.7%	-96.5%	-15.2%	-5.17%	-15.1%
S/DEPTH=.7	8.8%	8.31%	6.8%	6.8%	4.1%	-6.6%	-75.7%	-35.2%	-5.11%	-13.5%
S/DEPTH=.6	8.0%	7.5%	6.1%	6.1%	3.7%	-5.27	-61.2%	-33.8%	-5.02%	-13.5%
S/DEPTH=.5	8.0%	7.5%	6.1%	6.1%	3.7%	-5.8%	-61.2%	-33.8%	-5.02%	-13.5%
S/DEPTH=.4	7.2%	6.8%	5.6%	5.6%	3.4%	-5.0%	-50.6%	-32.4%	-4.15%	-12.2%
S/DEPTH=.3	6.5%	6.2%	5.0%	5.0%	3.1%	-4.4%	-48.7%	-31.1%	-4.0%	-11.0%
S/DEPTH=.2	6.0%	5.6%	4.6%	4.6%	2.8%	-4.0%	-36.7%	-29.9%	-3.16%	-10.3%
S/DEPTH=.1	5.5%	5.2%	4.2%	4.2%	2.6%	-3.6%	-32.3%	-28.8%	-3.22%	-9.2%
S/DEPTH=.0	5.1%	4.8%	4.0%	4.0%	2.4%	-3.3%	-29.1%	-27.8%	-3.0%	-8.6%
S/DEPTH=.0	4.8%	4.6%	3.7%	3.7%	2.3%	-3.0%	-26.9%	-27.1%	-2.82%	-8.2%
S/DEPTH=.0	4.7%	4.4%	3.6%	3.6%	2.3%	-2.9%	-25.7%	-26.7%	-2.77%	-7.9%
S/DEPTH=.0	4.7%	4.4%	3.6%	3.6%	2.3%	-2.9%	-25.7%	-26.7%	-2.77%	-7.9%
S/DEPTH=.0	4.6%	4.4%	3.6%	3.6%	2.2%	-2.9%	-25.3%	-26.5%	-2.6%	-7.8%

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.004	.007	.009	.010	.005	.003	.008	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.005	.005	.004	.002	.003	.007	.006	.003	.009
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 6=a

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.718 (.12X)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.490 (.02.0X)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.498 (.01.7X)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.988 (.01.9X)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.803 (.01.6X)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.813 (.02X)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.990 (.01.1X)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.106 (.01.7X)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.303 (.01.7X)

CASE 6=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.006669	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.005266	STREAM FUNCTION	.000039
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.010369	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.008802	STREAM FUNCTION	.000121
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.121155	STREAM FUNCTION	.134962
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.056605	STREAM FUNCTION	.076372

CASE 6=8

DEFINITIONS 5TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/g,28318)^{.5}T^{.2}$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .016611 DPT/LO = .100002
 H/DPT = .166304
 L/LO = .743750 PSI/(G*H*T) = -.005873

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.535441=01 X(2)/(H*T*G) = -.340594=02
 X(3)/(H*T*G) = -.140295=03 X(4)/(H*T*G) = -.211628=05
 X(5)/(H*T*G) = .257621=06

CASE 6=B

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 602 22.1%	10.0 617 20.2%	20.0 549 14.4%	30.0 452 4.2%	50.0 232 38.6%	75.0 109 *****	100.0 178 51.1%	130.0 320 19.9%	180.0 358 39.5%
SURFACE	6.293	6.045	5.367	4.413	2.281	.036	1.446	2.614	2.919
	20.6%	18.8%	13.2%	3.6%	34.17%	*****	47.9%	19.2%	36.1%
S/DEPTH=1.2	6.084	5.899	5.362						
	17.9%	16.7%	13.1%						
S/DEPTH=1.1	5.546	5.385	4.918	4.195					
	14.9%	13.6%	9.8%	2.5%					
S/DEPTH=1.0	5.085	4.944	4.534	3.898	2.208				
	13.0%	11.8%	8.3%	1.7%	28.9%				
S/DEPTH=.9	4.691	4.566	4.204	3.640	2.125	.126	1.394		
	11.2%	10.2%	6.9%	.9%	26.0%	*****	48.1%	2.523	2.958
S/DEPTH=.8	4.335	4.244	3.922	3.417	2.049	.201	1.262	19.8%	37.3%
	9.6%	8.6%	5.7%	.2%	23.5%	*****	45.6%	2.424	2.777
S/DEPTH=.7	4.073	3.973	3.682	3.227	1.980	.259	1.151	18.2%	34.7%
	8.2%	7.3%	4.6%	1.4%	21.4%	*****	43.6%	2.339	2.706
S/DEPTH=.6	3.837	3.746	3.482	3.066	1.918	.304	1.058	17.0%	32.0%
	6.9%	6.1%	3.6%	.9%	19.7%	*****	41.4%	2.267	2.645
S/DEPTH=.5	3.644	3.561	3.317	2.933	1.865	.339	.983	16.0%	29.8%
	5.8%	5.1%	2.8%	1.3%	18.3%	162.1%	39.4%	2.208	2.594
S/DEPTH=.4	3.491	3.413	3.186	2.827	1.822	.365	.923	15.2%	27.9%
	4.9%	4.2%	2.1%	1.7%	17.1%	135.5%	37.6%	2.162	2.555
S/DEPTH=.3	3.374	3.301	3.086	2.745	1.788	.384	.878	14.5%	26.5%
	4.2%	3.6%	1.8%	2.0%	16.2%	118.1%	36.1%	2.129	2.516
S/DEPTH=.2	3.292	3.222	3.015	2.688	1.763	.396	.846	14.1%	25.5%
	3.7%	3.1%	1.2%	2.2%	15.6%	107.1%	34.9%	2.110	2.509
S/DEPTH=.1	3.244	3.175	2.974	2.653	1.748	.404	.827	13.8%	24.9%
	3.4%	2.8%	1.0%	2.3%	15.2%	101.0%	34.2%	2.103	2.504
S/DEPTH=.0	3.228	3.159	2.960	2.642	1.743	.406	.821	13.7%	24.7%
	3.3%	2.7%	.9%	2.3%	15.1%	99.0%	34.0%		

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TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	10.0 0 .642 22.1%	20.0 20.8%	30.0 30.0 4.52 4.2%	50.0 50.0 2.32 38.6%	75.0 75.0 0.09 *****	100.0 100.0 0.178 51.1%	130.0 130.0 0.320 19.9%	180.0 180.0 0.358 39.5%
SURFACE	1.227	2.255	2.970	3.464	2.955	2.054	.835	.000
S/DEPTH=1.2	45.0%	41.6%	36.1%	20.0%	8.8%	44.5%	101.1%	*****
S/DEPTH=1.1	42.8%	41.5%	2.252					
S/DEPTH=1.0	39.3%	37.5%	2.696					
S/DEPTH=.9	37.2%	35.4%	34.3%	3.072				
S/DEPTH=.8	35.3%	33.6%	32.4%	21.7%	2.603	1.973		
S/DEPTH=.7	33.6%	31.9%	30.8%	20.3%	2.4%	3.7%		.000
S/DEPTH=.6	32.1%	30.4%	29.0%	19.1%	2.260	3.741	101.8%	*****
S/DEPTH=.5	30.7%	29.1%	27.6%	18.0%	2.0%	1.513	95.9%	.000
S/DEPTH=.4	29.6%	28.0%	26.3%	17.0%	1.9%	1.289	84.1%	*****
S/DEPTH=.3	27.9%	26.3%	25.3%	16.2%	1.8%	1.068	87.2%	.000
S/DEPTH=.2	25.8%	25.6%	24.8%	15.5%	1.7%	.850	84.1%	*****
S/DEPTH=.1	23.2%	23.2%	22.8%	14.6%	1.6%	.635	81.8%	.000
S/DEPTH=.0	22.8%	22.8%	22.8%	14.4%	1.5%	.422	80.1%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.258	78.4%	.000
	22.8%	22.8%	22.8%	14.4%	1.5%	.099	76.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	74.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	73.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	71.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	69.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	67.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	65.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	64.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	62.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	60.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	58.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	56.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	55.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	53.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	51.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	49.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	47.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	46.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	44.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	42.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	40.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	38.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	37.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	35.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	33.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	31.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	29.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	28.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	26.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	24.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	22.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	20.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	19.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	17.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	15.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	13.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	11.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	10.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	8.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	6.4%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	4.6%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	2.8%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	1.0%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	0.2%	*****
	22.8%	22.8%	22.8%	14.4%	1.5%	.000	0.0%	*****

CASE 6=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.617	.549	.452	.232	.009	.178	.320	.358
	22.1%	14.4%	4.2%	-38.6%	*****	51.1%	-19.9%	-39.5%
SURFACE	.000	12.246	22.167	29.170	33.026	26.737	17.498	6.619
	*****	60.0%	56.9%	51.8%	35.1%	7.6%	-56.6%	-171.8%
S/DEPTH#1.2	.000	11.793	22.336					*****
	*****	58.4%	56.8%					*****
S/DEPTH#1.1	.000	10.233	19.447	26.758				*****
	*****	54.9%	53.0%	49.7%				*****
S/DEPTH#1.0	.000	8.952	17.032	23.374	30.199			*****
	*****	52.0%	50.1%	46.8%	34.6%			*****
S/DEPTH# .9	.000	7.849	15.019	20.910	27.327	25.293	17.486	*****
	*****	49.0%	47.2%	44.0%	32.3%	3.2%	50.5%	*****
S/DEPTH# .8	.000	6.953	13.348	18.690	24.032	23.938	17.387	6.955
	*****	46.0%	44.2%	41.1%	30.1%	3.5%	43.2%	*****
S/DEPTH# .7	.000	6.215	11.970	16.653	22.846	22.735	17.226	7.287
	*****	43.0%	41.3%	38.4%	28.0%	3.6%	37.5%	*****
S/DEPTH# .6	.000	5.614	10.846	15.350	21.149	21.690	17.035	7.550
	*****	40.2%	38.6%	35.8%	26.1%	3.7%	32.9%	*****
S/DEPTH# .5	.000	5.132	9.944	14.139	19.766	20.808	16.839	7.753
	*****	37.6%	36.0%	33.2%	24.3%	3.7%	29.3%	*****
S/DEPTH# .4	.000	4.756	9.237	13.188	18.669	20.087	16.656	7.907
	*****	35.2%	33.8%	31.3%	22.8%	3.7%	18.5%	*****
S/DEPTH# .3	.000	4.473	8.707	12.473	17.839	19.528	16.501	8.018
	*****	33.2%	31.9%	29.6%	21.5%	3.6%	18.4%	*****
S/DEPTH# .2	.000	4.277	8.338	11.975	17.256	19.130	16.383	8.094
	*****	31.6%	30.5%	28.3%	20.6%	3.5%	18.0%	*****
S/DEPTH# .1	.000	4.161	8.121	11.682	16.912	18.892	15.311	8.137
	*****	30.8%	29.6%	27.4%	20.0%	3.5%	18.2%	*****
S/DEPTH# .0	.000	4.123	8.049	11.595	16.797	18.812	16.286	8.152
	*****	30.5%	29.3%	27.2%	19.8%	3.5%	18.1%	73.7%

CASE 608

TABLE IV-DIMENSIONLESS VERTICAL
THETA = 10.0
ETA/HEIGHT = 22.1% 20.2% 14.4% 5.49 4.52 232 75.0 100.0 130.0 180.0
31.382 39.1% 29.1% 29.1% 21.177 26.8% 33.8% 19.770 25.3% 14.714 24.5% 12.672 23.7% 10.701 18.516 29.1% 10.081 28.2% 21.7% 27.4% 28.137 26.8% 23.054 26.3% 28.0% 27.7% 28.000

	31.382	39.1%	29.1%	29.1%	21.177	26.8%	33.8%	19.770	25.3%	14.714	24.5%	12.672	23.7%	10.701	18.516	29.1%	10.081	28.2%	21.7%	27.4%	28.137	26.8%	23.054	26.3%	28.0%	27.7%	28.000
SURFACE	29.207	23.358	15.426	383	11.858	13.876	9.993	60.3%	7.798	138.6%																	
S/DEPTH=1.2	30.204	23.137	5.4%	*****	104.1%	45.7%	60.3%	*****	138.6%																		
S/DEPTH=1.1	26.915	29.1%	14.787	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=1.0	22.533	21.177	6.3%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.9	20.799	16.825	12.370	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	17.998	14.714	11.021	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	15.363	12.672	9.3%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	12.879	10.701	8.828	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	10.527	8.799	6.841	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	7.945	6.960	5.452	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	5.137	5.172	4.076	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	3.054	3.425	2.710	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	2.016	1.706	1.353	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	2.7%	20.8%	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 60B

TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 22.1%	10.0 20.2%	20.0 40.4%	30.0 60.8%	40.0 81.6%	50.0 103.2%	60.0 124.8%	75.0 156.0%	100.0 203.2%	130.0 262.4%	180.0 364.8%
SURFACE	22.365	20.889	17.070	12.254	4.067	.101	.000	.000	.000	.000	.000
S/DEPTH=1.2	24.0%	22.3%	14.5%	9.9%	5.4%	.8%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=1.1	20.1%	19.9%	14.4%	9.8%	5.3%	.7%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=1.0	17.6%	16.7%	14.4%	9.8%	5.3%	.7%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.9	15.9%	14.3%	12.1%	8.4%	4.4%	.6%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.8	14.8%	12.9%	10.2%	7.6%	4.1%	.5%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.7	12.4%	11.0%	8.3%	6.3%	3.7%	.4%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.6	10.3%	9.9%	7.6%	5.2%	3.0%	.3%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.5	8.2%	8.5%	6.3%	4.3%	2.4%	.2%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.4	6.8%	7.6%	5.4%	3.5%	1.9%	.1%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.3	5.6%	6.8%	4.7%	3.2%	1.5%	.1%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.2	4.3%	5.4%	3.6%	2.9%	1.2%	.1%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.1	3.2%	4.2%	2.4%	2.0%	.9%	.0%	.0%	.0%	.0%	.0%	.0%
S/DEPTH=0.0	2.1%	3.0%	1.8%	1.4%	.7%	.0%	.0%	.0%	.0%	.0%	.0%

CASE 6=B

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THE TA ETA/HEIGHT =	0 0	10.0 0	20.0 0	30.0 0	50.0 0	75.0 0	100.0 0	130.0 0	180.0 0
ETA/HEIGHT =	.642 22.1%	.617 20.2%	.549 14.4%	.452 4.2%	.232 38.6%	.009 *****	.178 51.1%	.320 19.9%	.338 39.5%
SURFACE	.000 *****	7.953 47.7%	14.716 44.5%	19.604 39.4%	23.671 24.2%	21.387 22.9%	15.733 37.4%	6.796 95.2%	.000 *****
S/DEPTH=.12	.000 *****	7.641 45.6%	14.694 44.4%	19.609 39.7%	20.989 26.1%	18.874 3.5%	15.122 30.8%	6.233 95.8%	.000 *****
S/DEPTH=.11	.000 *****	6.842 42.3%	12.609 40.6%	17.772 37.7%	20.989 26.1%	16.414 3.5%	13.378 28.8%	6.233 95.8%	.000 *****
S/DEPTH=.10	.000 *****	5.586 40.4%	10.789 38.7%	15.260 35.9%	20.989 26.1%	14.081 3.5%	11.647 27.0%	5.920 90.2%	.000 *****
S/DEPTH=.09	.000 *****	4.748 38.6%	9.189 37.0%	13.039 34.3%	20.989 26.1%	11.862 3.5%	9.933 25.8%	4.778 85.6%	.000 *****
S/DEPTH=.08	.000 *****	4.010 37.0%	7.774 35.5%	11.063 30.9%	20.989 26.1%	9.718 3.5%	8.240 24.8%	4.012 81.8%	.000 *****
S/DEPTH=.07	.000 *****	3.353 35.5%	6.510 34.0%	9.289 31.5%	20.989 26.1%	7.695 3.5%	6.565 23.8%	3.229 78.9%	.000 *****
S/DEPTH=.06	.000 *****	2.762 34.2%	5.371 32.8%	7.681 30.4%	20.989 26.1%	5.715 3.5%	4.908 22.8%	2.432 76.7%	.000 *****
S/DEPTH=.05	.000 *****	2.226 33.1%	4.333 31.7%	6.209 29.4%	20.989 26.1%	4.784 3.5%	3.764 22.8%	1.666 75.1%	.000 *****
S/DEPTH=.04	.000 *****	1.732 32.1%	3.376 30.8%	4.845 28.6%	20.989 26.1%	3.44 3.4%	2.629 22.8%	.815 75.1%	.000 *****
S/DEPTH=.03	.000 *****	1.272 31.4%	2.480 30.1%	3.564 27.9%	20.989 26.1%	1.684 3.4%	1.629 22.8%	.815 75.1%	.000 *****
S/DEPTH=.02	.000 *****	.835 29.8%	1.629 28.6%	2.343 27.5%	20.989 26.1%	.000 3.4%	.000 22.8%	.000 75.1%	.000 *****
S/DEPTH=.01	.000 *****	.414 28.6%	.807 27.5%	1.162 26.1%	20.989 26.1%	.000 3.4%	.000 22.8%	.000 75.1%	.000 *****
S/DEPTH=.0	.000 *****	.000 27.5%	.000 26.1%	.000 24.2%	20.989 26.1%	.000 3.4%	.000 22.8%	.000 75.1%	.000 *****

CASE 6=B

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	22.1%	6.62	6.17	5.99	.452	.232	.009	.320	.358
			14.4%	4.2%	38.6%	*****	51.1%	19.9%	39.5%
SURFACE									
S/DEPTH#1.2	17.097	15.757	12.417	8.441	2.418	.035	.562	2.177	2.785
	12.1%	19.1%	19.8%	3.2%	67.4%	*****	*****	29.2%	51.5%
S/DEPTH#1.1	15.455	14.635	12.383	7.065					
	24.9%	23.7%	19.6%	7.065					
S/DEPTH#1.0	11.567	10.976	9.346	5.345	1.972				
	19.1%	17.3%	11.6%	7.001	49.9%	.035	.497		
S/DEPTH#1.0	8.601	8.176	9.8%	3.995	1.526	*****	*****	1.716	2.306
	16.8%	15.1%	5.188	1.3%	46.1%	*****	*****	36.7%	73.4%
S/DEPTH# .9	6.332	6.028	5.188	2.937	1.155	.032	.347	1.257	1.711
	14.8%	13.2%	8.1%	2.1%	43.0%	*****	*****	34.9%	69.0%
S/DEPTH# .8	4.593	4.379	3.785	2.110	.851	.028	.238	1.889	1.222
	12.9%	11.4%	6.7%	2.8%	*****	*****	*****	33.4%	65.3%
S/DEPTH# .7	3.261	3.113	2.701	1.466	.604	.023	.159	1.597	1.829
	11.4%	9.9%	5.5%	3.4%	*****	*****	*****	*****	*****
S/DEPTH# .6	2.245	2.145	1.867	1.971	.407	.018	.102	1.372	1.520
	10.0%	8.6%	4.4%	3.8%	*****	*****	*****	*****	*****
S/DEPTH# .5	1.475	1.411	1.231	.598	.254	.012	.061	1.205	1.288
	8.8%	7.6%	3.5%	3.26	*****	*****	*****	*****	*****
S/DEPTH# .4	.903	.864	.755	.411	.140	.007	.032	1.090	1.17
	7.9%	6.7%	4.70	*****	*****	*****	*****	*****	*****
S/DEPTH# .3	.490	.470	.411	*****	*****	*****	*****	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .2	.213	.204	.179	.142	.061	.003	.014	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .1	.052	.050	.044	.035	.015	.001	.003	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 6=B

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	10.0 .642 22.1%	20.0 .617 20.2%	30.0 .549 14.4%	40.0 .492 4.2%	50.0 .38.6%	60.0 .25.2%	75.0 .009	100.0 .178	130.0 .320	180.0 .358
SURFACE	.000	5.824	10.449	13.304	14.374	11.315	7.459	2.906	.000	.000
S/DEPTH=1.2	.000	53.9%	49.9%	43.6%	24.5%	-8.8%	-48.1%	-104.2%	.000	.000
S/DEPTH=1.1	.000	50.7%	49.8%	41.2%	11.227				.000	.000
S/DEPTH=1.0	.000	46.2%	44.4%	41.0%	8.587				.000	.000
S/DEPTH=.9	.000	43.9%	42.1%	39.1%	11.576				.000	.000
S/DEPTH=.8	.000	41.6%	40.0%	37.1%	28.5%				.000	.000
S/DEPTH=.7	.000	39.5%	37.9%	35.0%	27.0%				.000	.000
S/DEPTH=.6	.000	37.6%	36.1%	33.0%	24.3%				.000	.000
S/DEPTH=.5	.000	35.8%	34.4%	31.0%	23.1%				.000	.000
S/DEPTH=.4	.000	33.5%	32.9%	30.4%	22.1%				.000	.000
S/DEPTH=.3	.000	31.3%	30.4%	28.4%	21.3%				.000	.000
S/DEPTH=.2	.000	29.1%	28.4%	26.4%	20.6%				.000	.000
S/DEPTH=.1	.000	26.9%	26.4%	24.4%	19.0%				.000	.000
S/DEPTH=.0	.000	24.7%	24.4%	22.4%	17.8%				.000	.000
S/DEPTH=.9	.000	22.5%	22.1%	20.1%	16.6%				.000	.000
S/DEPTH=.8	.000	20.3%	19.9%	17.9%	15.4%				.000	.000
S/DEPTH=.7	.000	18.1%	17.7%	15.7%	13.2%				.000	.000
S/DEPTH=.6	.000	15.9%	15.5%	13.5%	11.0%				.000	.000
S/DEPTH=.5	.000	13.7%	13.3%	11.3%	9.0%				.000	.000
S/DEPTH=.4	.000	11.5%	11.1%	9.1%	6.8%				.000	.000
S/DEPTH=.3	.000	9.3%	8.9%	6.9%	4.6%				.000	.000
S/DEPTH=.2	.000	7.1%	6.7%	4.7%	2.4%				.000	.000
S/DEPTH=.1	.000	4.9%	4.5%	2.5%	.2%				.000	.000
S/DEPTH=.0	.000	2.7%	2.3%	.3%	0.0%				.000	.000

CASE 6MB

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	10.0 20.2X	20.0 14.4X	30.0 4.2X	50.0 232	75.0 *****	100.0 51.1X	130.0 19.9X	180.0 39.9X
0 22.1X	.617 20.2X	.549 14.4X	.452 4.2X	.232	*****	51.1X	19.9X	39.9X
SURFACE	1.233	1.097	.904	.464	.018	.355	.639	.717
S/DEPTH=1.2	19.2X	13.7X	4.3X	.34.7X	*****X	45.2X	16.9X	33.9X
S/DEPTH=1.1	18.8X	13.7X	.872					
S/DEPTH=1.0	16.5X	11.3X	3.9X	.827	.463			
S/DEPTH=.9	14.9X	10.3X	3.7X	.785	.460	.340		
S/DEPTH=.8	13.5X	9.3X	3.4X	.748	.454	47.4X	.614	.700
S/DEPTH=.7	12.2X	11.3X	3.2X	.715	*****X	47.2X	17.0X	35.6X
S/DEPTH=.6	11.0X	10.1X	2.9X	.687	.448	.6270	.567	.678
S/DEPTH=.5	9.8X	9.1X	2.6X	.663	.442	.6243	15.0X	32.1X
S/DEPTH=.4	8.9X	8.2X	2.3X	.643	.435	.6221	13.3X	29.1X
S/DEPTH=.3	8.1X	7.5X	2.1X	.628	.430	.6204	11.8X	26.5X
S/DEPTH=.2	7.5X	6.9X	1.9X	.617	.425	.6191	10.7X	24.5X
S/DEPTH=.1	7.0X	6.5X	1.8X	.611	.420	.6176	9.8X	22.9X
S/DEPTH=.0	6.8X	6.2X	1.7X	.609	.419	.6174	8.8X	21.1X
	6.7X	6.2X	1.7X	.609	.419	.6174	8.7X	20.9X

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.019	.034	.044	.046	.020	.012	.030	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.007	.006	.003	.000	.009	.015	.010	.010	.020
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 6-B

TABLE XI-OVERALL WAVE PARAMETERS.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.744 (.46%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.439 (.48.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.480 (.47.6%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.939 (.48.3%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.775 (.47.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.826 (.140%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.955 (.45.2%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	1.055 (.47.3%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.280 (.47.5%)

CASE 6=8

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.028386	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.011306	STREAM FUNCTION	.000102
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.048241	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.020339	STREAM FUNCTION	.000191
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.257855	STREAM FUNCTION	.309936
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.108556	STREAM FUNCTION	.182958

CASE 6=C

7TH ORDER STREAM FUNCTION WAVE THEORY

LO 0 DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

DEFINITIONS

H 0 WAVE HEIGHT G 0 GRAVITATIONAL CONSTANT
 T 0 WAVE PERIOD X(N) 0 NTH STREAM FUNCTION COEFFICIENT
 DPT 0 WATER DEPTH L 0 WAVE LENGTH
 PSI 0 VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO 0 .054927 DPT/LO 0 .10002
 H/DPT 0 .549254
 L/LO 0 .783203 PSI/(G*H*T) 0 -.007567

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) 0	-.489629=01	X(2)/(H*T*G) 0	-.490251=02
X(3)/(H*T*G) 0	-.402895=03	X(4)/(H*T*G) 0	-.254856=04
X(5)/(H*T*G) 0	-.127397=05	X(6)/(H*T*G) 0	-.109304=06
X(7)/(H*T*G) 0	-.494603=07		

CASE 6=C

TABLE I=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .713 29.9%	10.0 .657 25.0%	20.0 .530 11.4%	30.0 .390 11.1%	40.0 .250 12.0%	50.0 .106 31.2%	60.0 .001 313.2%	70.0 100.0 51.8%	80.0 130.0 44.0%	90.0 180.0 26.7%
SURFACE	7.676	7.006	5.557	4.024	1.537	.403	.1419	.2085	.2436	.69.4%
S/DEPTH=1.3	3.06%	25.3%	10.9%	11.7%	108.0%	397.9%	47.4%	43.9%	43.9%	69.4%
S/DEPTH=1.2	6.872	6.535	5.089	3.983	1.548	.83.8%	.1.418	.2.049	.2.217	.70.8%
S/DEPTH=1.1	19.9%	19.9%	17.6%	15.0%	12.1%	8.1%	4.1%	4.6%	4.6%	2.175
S/DEPTH=1.0	17.6%	15.0%	12.1%	9.4%	6.9%	4.6%	3.1%	3.1%	3.1%	71.9%
S/DEPTH=.9	15.0%	12.1%	9.4%	6.9%	4.6%	3.1%	2.1%	2.1%	2.1%	2.138
S/DEPTH=.8	12.1%	9.4%	6.9%	4.6%	3.1%	2.1%	1.6%	1.6%	1.6%	67.1%
S/DEPTH=.7	9.4%	6.9%	4.6%	3.1%	2.1%	1.6%	1.1%	1.1%	1.1%	63.1%
S/DEPTH=.6	6.9%	4.6%	3.1%	2.1%	1.6%	1.1%	.9%	.9%	.9%	59.7%
S/DEPTH=.5	4.6%	3.1%	2.1%	1.6%	1.1%	.9%	.7%	.7%	.7%	57.1%
S/DEPTH=.4	3.1%	2.1%	1.6%	1.1%	.9%	.7%	.5%	.5%	.5%	54.1%
S/DEPTH=.3	2.1%	1.6%	1.1%	.9%	.7%	.5%	.4%	.4%	.4%	51.8%
S/DEPTH=.2	1.6%	1.1%	.9%	.7%	.5%	.4%	.3%	.3%	.3%	49.4%
S/DEPTH=.1	.9%	.7%	.5%	.4%	.3%	.2%	.1%	.1%	.1%	47.1%
S/DEPTH=.0	.7%	.5%	.4%	.3%	.2%	.1%	.0%	.0%	.0%	44.8%

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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CASE 6=C

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 29.9%	10.0 657	20.0 530	30.0 390	50.0 146	75.0 100.0	100.0 130.0	180.0 287	274.4%
ETA/HEIGHT	29.9%	25.0%	11.4%	11.1%	120.1%	313.2%	51.8%	44.0%	74.4%
SURFACE	.000	22.204	34.371	37.791	32.758	20.743	11.164	3.403	.000
8/DEPTH#1.3	*****	77.5%	71.5%	62.3%	34.0%	29.8%	145.5%	433.2%	*****
9/DEPTH#1.2	*****	19.741							
9/DEPTH#1.1	*****	74.7%							
9/DEPTH#1.0	*****	16.366	29.347	36.996					
9/DEPTH# .9	*****	71.3%	68.2%	62.6%					
9/DEPTH# .8	*****	13.677	24.825	31.873					
9/DEPTH# .7	*****	68.3%	65.3%	59.9%					
9/DEPTH# .6	*****	11.526	21.147	27.598					
9/DEPTH# .5	*****	65.1%	62.2%	57.0%					
9/DEPTH# .4	*****	9.804	18.160	24.050					
9/DEPTH# .3	*****	61.9%	59.1%	54.1%					
9/DEPTH# .2	*****	8.423	15.737	21.121					
9/DEPTH# .1	*****	58.6%	53.9%	51.1%					
9/DEPTH# .0	*****	7.318	13.780	18.722					
9/DEPTH# .9	*****	55.3%	52.7%	48.2%					
9/DEPTH# .8	*****	6.440	12.213	16.776					
9/DEPTH# .7	*****	52.1%	49.6%	45.3%					
9/DEPTH# .6	*****	5.751	10.974	15.223					
9/DEPTH# .5	*****	49.0%	46.7%	42.8%					
9/DEPTH# .4	*****	5.220	10.017	14.013					
9/DEPTH# .3	*****	46.2%	44.0%	40.2%					
9/DEPTH# .2	*****	43.7%	41.7%	38.2%					
9/DEPTH# .1	*****	4.558	8.815	12.682					
9/DEPTH# .0	*****	41.9%	40.0%	36.8%					
9/DEPTH# .9	*****	4.400	8.528	12.114					
9/DEPTH# .8	*****	40.7%	38.9%	35.7%					
9/DEPTH# .7	*****	4.348	8.433	11.992					
9/DEPTH# .6	*****	40.3%	38.5%	35.3%					
9/DEPTH# .5	*****								
9/DEPTH# .4	*****								
9/DEPTH# .3	*****								
9/DEPTH# .2	*****								
9/DEPTH# .1	*****								
9/DEPTH# .0	*****								

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

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CASE 6MC

TABLE V DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA = ETA/HEIGHT =	0 25.9%	10.0 .657	20.0 .530	30.0 .390	50.0 .146	75.0 313.2%	100.0 51.8%	130.0 m=.266	180.0 m=.287	240.0 m=.744%
SURFACE	12.276	15.276	20.096	23.637	23.495	17.786	11.295	4.066	.000	*****
S/DEPTH=1.3	*****	65.2%	58.3%	48.4%	22.0%	24.9%	89.8%	210.9%	*****	*****
S/DEPTH=1.2	*****	11.004								
S/DEPTH=1.1	*****	61.2%	17.198	23.111						
S/DEPTH=1.0	*****	57.3%	54.5%	49.6%						
S/DEPTH=.9	*****	14.708	14.497	19.675						
S/DEPTH=.8	*****	54.9%	52.2%	47.5%						
S/DEPTH=.7	*****	6.452	12.204	16.708	20.970					
S/DEPTH=.6	*****	52.6%	50.0%	45.6%	29.7%	16.414	11.284			
S/DEPTH=.5	*****	50.4%	48.0%	43.8%	28.6%	8.6%	77.5%	3.875	*****	.000
S/DEPTH=.4	*****	48.4%	46.1%	42.1%	27.7%	14.400	10.136	226.2%	*****	.000
S/DEPTH=.3	*****	3.695	7.081	9.889	13.078	12.442	8.938	3.485	*****	.000
S/DEPTH=.2	*****	46.6%	44.4%	40.5%	26.8%	7.0%	67.6%	216.9%	*****	.000
S/DEPTH=.1	*****	3.009	5.785	8.118	10.876	10.542	7.704	3.056	*****	.000
S/DEPTH=.0	*****	45.0%	42.9%	39.2%	26.0%	6.3%	64.1%	205.4%	*****	.000
S/DEPTH=.9	*****	2.401	4.628	6.521	8.832	8.694	6.446	2.594	*****	.000
S/DEPTH=.8	*****	43.6%	41.6%	38.0%	25.3%	5.8%	61.2%	196.2%	*****	.000
S/DEPTH=.7	*****	1.853	3.580	5.062	6.916	6.895	5.171	2.106	*****	.000
S/DEPTH=.6	*****	42.4%	40.5%	37.1%	24.7%	5.54%	59.0%	189.1%	*****	.000
S/DEPTH=.5	*****	1.352	2.616	3.708	5.101	5.135	3.886	1.597	*****	.000
S/DEPTH=.4	*****	41.5%	39.6%	36.3%	24.3%	5.1%	57.3%	193.7%	*****	.000
S/DEPTH=.3	*****	.884	1.712	2.431	3.360	3.406	2.593	1.073	*****	.000
S/DEPTH=.2	*****	*****	39.0%	35.7%	23.9%	5.0%	56.1%	*****	*****	.000
S/DEPTH=.1	*****	.437	.846	1.203	1.668	1.698	1.298	.539	*****	.000
S/DEPTH=.0	*****	*****	*****	*****	23.7%	4.8%	55.4%	*****	*****	.000
S/DEPTH=.9	*****	.000	.000	.000	.000	.000	.000	.000	*****	.000
S/DEPTH=.8	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.7	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****	.000

CASE 6=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD....DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.713	.657	.530	.390	.146	.061	.180	.266	.267
	29.9%	25.0%	11.4%	11.1%	120.1%	313.2%	51.6%	44.0%	74.4%
SURFACE	26.608	22.210	14.108	7.590	1.350	.017	.530	.1.366	.1.620
S/DEPTH#1.3	45.1%	36.9%	12.3%	31.6%	249.0%	*****	*****	66.5%	94.3%
S/DEPTH#1.2	20.076	18.509							
S/DEPTH#1.2	27.3%	24.3%							
S/DEPTH#1.2	14.793	13.712	10.889	7.318					
S/DEPTH#1.1	18.2%	14.4%	1.8%	24.1%					
S/DEPTH#1.0	10.890	10.141	8.166	5.618					
S/DEPTH#1.0	14.1%	10.5%	1.2%	24.9%					
S/DEPTH#1.0	7.985	7.465	6.083	4.271	1.152				
S/DEPTH#1.0	10.4%	7.1%	3.8%	25.6%	*****	.009	.528		
S/DEPTH#1.0	5.809	5.450	4.486	3.204	.923				
S/DEPTH#1.0	7.1%	4.0%	6.2%	26.3%	*****	.003	.372	1.175	1.447
S/DEPTH#1.0	4.173	3.926	3.260	2.363	.720			*****	117.6%
S/DEPTH#1.0	4.2%	1.2%	8.3%	26.9%	*****			*****	1.085
S/DEPTH#1.0	2.959	2.772	2.318	1.702	.544	.002	.257	*****	*****
S/DEPTH#1.0	1.8%	1.2%	10.1%	27.4%	*****	.002	.172	*****	.782
S/DEPTH#1.0	2.010	1.899	1.598	1.185	.394	.002	.420	*****	*****
S/DEPTH#1.0	6.6%	3.2%	11.7%	*****	*****	.002	.420	*****	.535
S/DEPTH#1.0	1.314	1.244	1.052	.786	.270	.002	.111	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	.066	*****	.338
S/DEPTH#1.0	.800	.759	.644	.485	.171	.001	.263	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	.035	*****	.188
S/DEPTH#1.0	.411	.411	.350	.265	.095	.001	.146	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	.015	*****	.083
S/DEPTH#1.0	.187	.178	.152	.115	.042	.001	.054	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	.016	*****	.021
S/DEPTH#1.0	.046	.044	.037	.028	.010	.000	.004	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	.000	*****	.000
S/DEPTH#1.0	.000	.000	.000	.000	.000	.000	.000	*****	*****
S/DEPTH#1.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .713 29.9%	10.0 .657 25.0%	20.0 .530 11.4%	30.0 .390 -11.1%	50.0 .146 -120.1%	75.0 -180.0 313.2%	100.0 -210.0 51.6%	130.0 -266 -44.4%	180.0 -287 -74.4%
SURFACE	.000	10.774	16.234	17.301	14.220	8.914	4.983	1.617	.000
S/DEPTH#1.3	*****	71.9%	63.6%	51.7%	17.1%	-43.2%	-115.6%	-218.6%	*****
S/DEPTH#1.2	*****	66.6%	58.9%	53.7%	12.710	16.666			
S/DEPTH#1.1	*****	61.6%	56.5%	51.4%	9.591	53.7%			
S/DEPTH#1.0	*****	59.1%	53.8%	49.1%	11.594	12.710			
S/DEPTH# .9	*****	56.5%	51.3%	46.3%	32.0%	11.594			
S/DEPTH# .8	*****	53.9%	49.1%	44.2%	30.6%	32.0%			
S/DEPTH# .7	*****	51.4%	46.8%	42.7%	29.3%	30.6%			
S/DEPTH# .6	*****	49.1%	44.7%	40.9%	28.1%	29.3%			
S/DEPTH# .5	*****	46.9%	42.9%	39.3%	27.0%	28.1%			
S/DEPTH# .4	*****	44.7%	40.9%	37.9%	26.0%	27.0%			
S/DEPTH# .3	*****	42.9%	39.3%	36.5%	25.2%	26.0%			
S/DEPTH# .2	*****	40.9%	37.9%	35.1%	24.3%	25.2%			
S/DEPTH# .1	*****	39.3%	36.5%	34.1%	23.6%	24.3%			
S/DEPTH# .0	*****	37.9%	35.1%	33.6%	22.9%	23.6%			
	*****	36.5%	34.1%	32.9%	22.1%	22.9%			
	*****	35.1%	32.9%	31.6%	21.4%	22.1%			
	*****	34.1%	31.6%	30.6%	20.7%	21.4%			
	*****	32.9%	30.6%	29.3%	19.6%	20.7%			
	*****	31.6%	29.3%	28.1%	18.6%	19.6%			
	*****	30.6%	28.1%	27.0%	17.6%	18.6%			
	*****	29.3%	27.0%	26.0%	16.6%	17.6%			
	*****	28.1%	26.0%	25.2%	15.6%	16.6%			
	*****	27.0%	25.2%	24.3%	14.6%	15.6%			
	*****	26.0%	24.3%	23.6%	13.6%	14.6%			
	*****	25.2%	23.6%	22.9%	12.6%	13.6%			
	*****	24.3%	22.9%	22.1%	11.6%	12.6%			
	*****	23.6%	22.1%	21.4%	10.6%	11.6%			
	*****	22.9%	21.4%	20.7%	9.6%	10.6%			
	*****	22.1%	21.4%	20.7%	8.6%	9.6%			
	*****	21.4%	20.7%	20.0%	7.6%	8.6%			
	*****	20.7%	20.0%	19.6%	6.6%	7.6%			
	*****	20.0%	19.6%	18.6%	5.6%	6.6%			
	*****	19.6%	18.6%	17.6%	4.6%	5.6%			
	*****	18.6%	17.6%	16.6%	3.6%	4.6%			
	*****	17.6%	16.6%	15.6%	2.6%	3.6%			
	*****	16.6%	15.6%	14.6%	1.6%	2.6%			
	*****	15.6%	14.6%	13.6%	.6%	1.6%			
	*****	14.6%	13.6%	12.6%	0.0%	.6%			
	*****	13.6%	12.6%	11.6%	0.0%	0.0%			
	*****	12.6%	11.6%	10.6%	0.0%	0.0%			
	*****	11.6%	10.6%	9.6%	0.0%	0.0%			
	*****	10.6%	9.6%	8.6%	0.0%	0.0%			
	*****	9.6%	8.6%	7.6%	0.0%	0.0%			
	*****	8.6%	7.6%	6.6%	0.0%	0.0%			
	*****	7.6%	6.6%	5.6%	0.0%	0.0%			
	*****	6.6%	5.6%	4.6%	0.0%	0.0%			
	*****	5.6%	4.6%	3.6%	0.0%	0.0%			
	*****	4.6%	3.6%	2.6%	0.0%	0.0%			
	*****	3.6%	2.6%	1.6%	0.0%	0.0%			
	*****	2.6%	1.6%	.6%	0.0%	0.0%			
	*****	1.6%	.6%	0.0%	0.0%	0.0%			
	*****	.6%	0.0%	0.0%	0.0%	0.0%			
	*****	0.0%	0.0%	0.0%	0.0%	0.0%			

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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CASE 6=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.055	.099	.125	.119	.047	.027	.061	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.003	.001	.002	.008	.019	.023	.012	.020	.034
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 6=C

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.783 (#9.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.396 (#26.2%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.434 (#22.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.830 (#24.5%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.704 (#21.6%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.846 (#2.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.863 (#16.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.941 (#21.5%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.257 (#21.4%)

CASE 6=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.071436	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.018978	STREAM FUNCTION	.000097
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.130333	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.034297	STREAM FUNCTION	.000218
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.412384	STREAM FUNCTION	.538307
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.6152354	STREAM FUNCTION	.300862

ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 6=D

8TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .073041 DPT/LO = .100002

H/DPT = .730398 PSI/(G*H*T) = -.007316

L/LO = .624414

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.410823=01 X(2)/(H*T*G) = -.518243=02

X(3)/(H*T*G) = -.628079=03 X(4)/(H*T*G) = -.688367=04

X(5)/(H*T*G) = -.953495=05 X(6)/(H*T*G) = -.119008=05

X(7)/(H*T*G) = -.252790=06 X(8)/(H*T*G) = -.182720=06

CASE 6=D

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.782	.417	.279	.079	.071	.151	.205	.218
	36.0%	17.0%	12.6%	55.2%	305.9%	281.5%	42.6%	86.8%
SURFACE	.000	2.733	3.318	3.263	2.609	1.628	.900	.291
S/DEPTH=1.5	*****	69.9%	52.1%	30.8%	10.5%	106.8%	216.8%	369.4%
S/DEPTH=1.4	*****							
S/DEPTH=1.3	*****	2.512						
S/DEPTH=1.2	*****	67.3%	3.289					
S/DEPTH=1.1	*****	61.0%	53.8%	3.243				
S/DEPTH=1.0	*****	1.579	2.702	18.7%				
S/DEPTH= .9	*****	56.3%	49.7%	2.750				
S/DEPTH= .8	*****	1.277	2.233	35.6%				
S/DEPTH= .7	*****	51.8%	45.7%	2.444				
S/DEPTH= .6	*****	1.041	1.850	1.6%				
S/DEPTH= .5	*****	47.7%	42.0%	2.114				
S/DEPTH= .4	*****	.853	1.535	.1%				
S/DEPTH= .3	*****	43.8%	38.5%	1.813				
S/DEPTH= .2	*****	40.3%	35.4%	1.47%				
S/DEPTH= .1	*****	37.2%	32.5%	1.041				
	*****	34.2%	30.0%	.897				
	*****	32.2%	27.8%	.676				
	*****	30.2%	26.1%	.522				
	*****	28.7%	24.7%	.424				
	*****	26.7%	23.6%	.320				
	*****	25.2%	22.3%	.214				
	*****	23.6%	20.4%	.151				
	*****	22.3%	18.9%	.079				
	*****	20.4%	17.7%	.037				
	*****	18.9%	16.6%	.014				
	*****	17.7%	15.5%	.000				
	*****	16.6%	14.4%	.000				
	*****	15.5%	13.3%	.000				
	*****	14.4%	12.2%	.000				
	*****	13.3%	11.1%	.000				
	*****	12.2%	10.0%	.000				
	*****	11.1%	9.0%	.000				
	*****	10.0%	8.0%	.000				
	*****	9.0%	7.0%	.000				
	*****	8.0%	6.0%	.000				
	*****	7.0%	5.0%	.000				
	*****	6.0%	4.0%	.000				
	*****	5.0%	3.0%	.000				
	*****	4.0%	2.0%	.000				
	*****	3.0%	1.0%	.000				
	*****	2.0%	.0%	.000				
	*****	1.0%	.0%	.000				
	*****	.0%	.0%	.000				

TABLE III—THREE-DIMENSIONAL ACCELERATION COMPONENT FIELD... DEFINED IN EQUATION (23)

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CASE 6-D

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	782	594	417	229	979	1071	1151	205	218
	36.0%	17.0%	12.6%	55.2%	305.9%	281.5%	42.6%	86.6%	129.0%
SURFACE	-17.025	-16.944	-3.015	4.983	13.027	13.840	9.137	3.464	2.496
S/DEPTH#1.5	27.2%	29.6%	-252.1%	271.4%	121.9%	64.0%	-21.8%	-345.7%	538.9%
S/DEPTH#1.4	100.0%								
S/DEPTH#1.3	32.982	19.444							
S/DEPTH#1.2	62.4%	38.6%	-3.319						
S/DEPTH#1.1	62.3%	48.4%	-22.0%						
S/DEPTH#1.0	30.819	25.313	-8.312	4.786					
S/DEPTH#0.9	60.3%	50.2%	26.1%	280.5%					
S/DEPTH#0.8	27.041	22.030	10.599	626					
S/DEPTH#0.7	57.7%	49.6%	4.7%	*****					
S/DEPTH#0.6	23.737	20.052	11.296	-1.921	11.108				
S/DEPTH#0.5	54.6%	47.9%	15.5%	-32.1%	133.2%	12.663			
S/DEPTH#0.4	20.554	17.809	11.069	-5.357	8.335	76.7%	8.121	3.377	2.433
S/DEPTH#0.3	51.8%	45.9%	20.0%	-125.8%	144.8%	10.472	7.5%	357.2%	100.0%
S/DEPTH#0.2	17.581	15.515	10.305	-4.032	6.159	78.9%	7.005	3.116	2.223
S/DEPTH#0.1	49.0%	43.7%	21.6%	-72.3%	158.2%	8.582	3.12%	378.3%	617.5%
S/DEPTH#0.0	14.837	13.272	9.240	-4.191	17.484	81.0%	5.918	2.772	1.964
S/DEPTH#0.9	46.3%	41.3%	22.3%	-40.6%	174.5%	82.9%	2%	346.4%	660.2%
S/DEPTH#0.8	12.308	11.123	8.014	-35.9%	3.212	5.493	4.864	2.372	1.872
S/DEPTH#0.7	33.9%	39.4%	22.1%	-35.9%	193.5%	84.6%	2.9%	233.2%	655.8%
S/DEPTH#0.6	9.970	9.078	6.708	-35.579	2.256	4.210	3.845	1.934	1.559
S/DEPTH#0.5	41.8%	37.6%	21.6%	-28.5%	215.1%	86.1%	5.0%	306.1%	*****
S/DEPTH#0.4	7.789	7.132	5.370	-23.001	1.543	86.1%	2.855	1.070	1.031
S/DEPTH#0.3	40.1%	36.0%	21.0%	-23.9%	1.011	87.3%	6.6%	*****	*****
S/DEPTH#0.2	5.733	5.271	4.022	-3.321	3.051	1.984	1.890	0.989	0.93
S/DEPTH#0.1	38.7%	34.8%	20.5%	-21.1%	*****	86.1%	7.6%	*****	*****
S/DEPTH#0.0	31.771	31.477	20.677	-1.578	.606	.977	.940	*****	.348
S/DEPTH#0.9	37.6%	33.9%	20.0%	*****	.283	*****	*****	*****	*****
S/DEPTH#0.8	1.870	1.727	-1.337	*****	*****	*****	*****	*****	*****
S/DEPTH#0.7	37.0%	33.3%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.6	0.00	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH#0.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH#0.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 6=D

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

ETA/HEIGHT	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
THETA	.782	.594	.417	.279	.079	.071	.151	.205	.218
ETA/HEIGHT	36.0%	17.0%	12.8%	55.2%	305.9%	281.5%	42.6%	86.8%	129.0%
SURFACE	36.475	22.255	12.216	6.441	1.172	.040	.708	1.783	5.139
S/DEPTH#1.5	39.7%	4.9%	53.9%	138.3%	*****	*****	*****	*****	222.1%
S/DEPTH#1.4	100.0%								
S/DEPTH#1.3	23.513	20.670							
S/DEPTH#1.2	6.5%	2.4%	12.126						
S/DEPTH#1.1	18.691	16.715	45.5%						
S/DEPTH#1.0	6.9%	15.9%	10.227	6.408					
S/DEPTH# .9	15.074	13.653	48.8%	101.6%					
S/DEPTH# .8	14.3%	22.4%	8.626	5.581					
S/DEPTH# .7	12.286	11.235	51.8%	99.3%					
S/DEPTH# .6	20.7%	28.1%	7.272	4.830	1.124				
S/DEPTH# .5	10.086	33.0%	54.7%	97.8%	*****	.029			
S/DEPTH# .4	26.3%	37.3%	6.118	4.152	1.031	*****	.597	1.662	2.026
S/DEPTH# .3	31.1%	40.8%	57.2%	96.8%	*****	.014	*****	*****	100.0%
S/DEPTH# .2	35.1%	59.4%	5.124	3.540	.928	.006	*****	*****	1.753
S/DEPTH# .1	5.016	40.3%	5.243	2.884	*****	.002	*****	*****	1.488
S/DEPTH# .0	38.5%	43.9%	61.3%	95.5%	*****	.001	*****	*****	1.230
S/DEPTH# .9	4.559	4.267	3.492	2.476	.706	.315	*****	*****	*****
S/DEPTH# .8	41.2%	46.3%	62.6%	95.1%	*****	.242	*****	*****	*****
S/DEPTH# .7	3.633	3.407	2.805	2.007	.590	.000	*****	*****	*****
S/DEPTH# .6	43.5%	48.3%	64.1%	94.8%	*****	.000	*****	*****	*****
S/DEPTH# .5	2.804	2.634	2.178	1.570	.473	*****	*****	*****	*****
S/DEPTH# .4	45.2%	49.9%	65.1%	95.7%	*****	.000	*****	*****	*****
S/DEPTH# .3	2.046	1.924	1.596	1.157	.355	.176	*****	*****	*****
S/DEPTH# .2	46.5%	51.1%	*****	*****	*****	.115	*****	*****	*****
S/DEPTH# .1	1.338	1.359	1.047	.761	.237	.000	*****	*****	*****
S/DEPTH# .0	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .9	.061	.023	.518	.378	.118	.000	*****	*****	*****
S/DEPTH# .8	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .7	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .6	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .5	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .4	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .3	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .2	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .1	*****	*****	*****	*****	*****	.000	*****	*****	*****
S/DEPTH# .0	*****	*****	*****	*****	*****	.000	*****	*****	*****

TABLE VI. DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

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CASE 6=D

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.782	.594	.417	.279	.079	.071	.151	.205	.218
	36.0%	17.0%	=12.6%	=55.8%	=305.9%	281.5%	42.6%	=86.8%	=129.0%
SURFACE	41.953	21.752	9.962	4.469	.592	=.032	=.363	=.789	=.922
	56.5%	19.8%	=53.8%	=171.6%	*****	*****	*****	*****	*****
S/DEPTH=1.5	32.222								
	100.0%								
S/DEPTH=1.4	28.588								
	19.3%								
S/DEPTH=1.3	16.066								
	1.2%		9.844						
S/DEPTH=1.2	11.536		7.467	4.430					
	=3.0%		=43.8%	=105.0%					
S/DEPTH=1.1	8.325		5.625	3.478					
	=12.4%		=46.9%	=101.7%					
S/DEPTH=1.0	6.011		4.201	2.689	.542				
	19.0%		=50.3%	=99.5%	*****	*****			
S/DEPTH=.9	4.321		3.103	2.045	.453	=.022			
	=24.9%		=53.8%	*****	*****	*****	=.269	=.689	=.830
S/DEPTH=.8	3.075		2.847	1.523	.366	=.010	*****	*****	*****
	=30.0%		=56.4%	*****	*****	*****	=.188	=.515	=.625
S/DEPTH=.7	2.150		1.606	1.106	.285	=.004	*****	*****	*****
	=30.5%		*****	*****	*****	*****	=.128	=.370	=.453
S/DEPTH=.6	1.462		1.108	.775	.211	=.001	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.952		.729	.517	.147	=.000	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.576		.447	.320	.095	=.000	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.312		.293	.175	.053	=.000	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.135		.105	.077	.024	=.000	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.033		.031	.019	.006	=.000	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000		.000	.000	.000	*****	*****	*****	*****
	*****		*****	*****	*****	*****	*****	*****	*****

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

323

CASE 6=D

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EG.(35)									
SURFACE	.000	.143	.247	.294	.248	.088	.046	.099	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EG.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EG.(36)									
SURFACE	.009	.010	.014	.020	.031	.031	.010	.033	.050
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EG.(37)									
SURFACE	.036	.011	.009	.007	.005	.000	.001	.003	.006

CASE 6=0

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.824 (13.9%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.286 (75.0%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.332 (67.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.618 (71.2%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.545 (63.7%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.883 (4.4%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.660 (53.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.720 (61.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.175 (53.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.151971	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.029199	STREAM FUNCTION	.006134
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.296932	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.050487	STREAM FUNCTION	.037659
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.585829	STREAM FUNCTION	.893143
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.185364	STREAM FUNCTION	.246478

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3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .031267 DPT/LO = .199999
 H/DPT = .156315
 L/LO = .899219 PSI/(G*H*T) = -.004328

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.368465+01 X(2)/(H*T*G) = -.228970+03
 X(3)/(H*T*G) = .584698+06

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TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	10.0 5.44 8.1%	20.0 5.01 6.1%	30.0 4.50 3.8%	50.0 3.06 5.0%	75.0 .087 48.0%	100.0 1.124 30.1%	130.0 1.370 3.6%	180.0 1.456 9.7%
SURFACE	4.068	3.988	3.754	3.384	.767	-.737	2.454	3.045
S/DEPTH: 1.0	4.1%	3.8%	2.9%	1.4%	22.3%	18.1%	2.4%	5.3%
S/DEPTH: .9	3.634	3.572	3.388	3.089	.757			
S/DEPTH: .8	2.8%	2.6%	2.0%	.9%	20.8%			
S/DEPTH: .7	3.198	3.144	2.985	2.726	.689			
S/DEPTH: .6	2.3%	2.2%	1.6%	.7%	17.4%	.652		
S/DEPTH: .5	2.832	2.785	2.646	2.419	.627	16.9%		
S/DEPTH: .4	2.0%	1.8%	1.4%	.4%	11.6%	14.7%		
S/DEPTH: .3	2.527	2.486	2.363	2.163	.573	11.6%		
S/DEPTH: .2	1.7%	1.5%	1.2%	.5%	12.2%	12.8%		
S/DEPTH: .1	2.276	2.239	2.129	1.951	.527	11.1%		
S/DEPTH: .0	1.4%	1.3%	1.0%	.4%	10.2%	11.1%		
S/DEPTH: .9	2.072	2.038	1.939	1.779	.488	9.6%		
S/DEPTH: .8	1.2%	1.2%	.9%	.4%	8.5%	8.3%		
S/DEPTH: .7	1.911	1.880	1.790	1.643	.456	7.3%		
S/DEPTH: .6	1.1%	1.0%	.8%	.4%	7.1%	6.6%		
S/DEPTH: .5	1.789	1.761	1.677	1.540	.432	5.3%		
S/DEPTH: .4	1.0%	.9%	.7%	.4%	4.1%	4.0%		
S/DEPTH: .3	1.704	1.678	1.598	1.468	.415	3.1%		
S/DEPTH: .2	.9%	.9%	.7%	.4%	3.3%	2.8%		
S/DEPTH: .1	1.654	1.628	1.551	1.425	.405	1.9%		
S/DEPTH: .0	.8%	.8%	.7%	.4%	.401	1.7%		
S/DEPTH: .9	1.638	1.612	1.535	1.411	.401	1.5%		
S/DEPTH: .8	.9%	.8%	.7%	.4%	.47%	1.2%		
S/DEPTH: .7						.6%		
S/DEPTH: .6						1.6%		
S/DEPTH: .5						1.5%		
S/DEPTH: .4						1.6%		
S/DEPTH: .3						1.6%		
S/DEPTH: .2						1.6%		
S/DEPTH: .1						1.6%		
S/DEPTH: .0						1.6%		

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TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)										
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0	
ETA/HEIGHT=	8.1%	.533	.501	.450	.306	.087	.0124	.0370	.456	
		7.7%	6.3%	3.8%	5.0%	48.0%	30.1%	3.6%	9.7%	
SURFACE	.000	.676	1.315	1.884	2.719	3.119	2.882	1.662	.000	
S/DEPTH=1.0	*****	9.1%	8.4%	7.3%	4.3%	.4%	4.9%	10.3%	*****	
	.000	.588	1.154	1.675	2.513	3.051				
S/DEPTH=.9	*****	7.3%	7.0%	6.3%	4.3%	.6%				
	.000	.496	.972	1.413	2.124	2.589				
S/DEPTH=.8	*****	6.5%	6.1%	5.5%	3.7%	.4%	2.53%	10.1%	*****	.000
	.000	.415	.815	1.184	1.784	2.182	2.145	1.328		
S/DEPTH=.7	*****	5.7%	5.4%	4.9%	3.3%	.3%	1.796	.91%	*****	.000
	.000	.344	.676	.983	1.483	1.820	3.42%	1.118		
S/DEPTH=.6	*****	5.1%	4.8%	4.3%	2.8%	.1%	1.481	.826	*****	.000
	.000	.282	.553	.805	1.216	1.495	3.0%	.926		
S/DEPTH=.5	*****	4.6%	4.3%	3.9%	2.5%	.0%	1.193	.749	*****	.000
	.000	.226	.443	.645	.976	1.202	2.8%	.68%		
S/DEPTH=.4	*****	4.1%	3.9%	3.5%	2.2%	.1%	.928	.585	*****	.000
	.000	.175	.343	.500	.756	.934				
S/DEPTH=.3	*****	3.8%	3.6%	3.2%	2.0%	.1%	2.6%	.430	*****	.000
	.000	.128	.251	.365	.553	.684				
S/DEPTH=.2	*****	3.3%	3.3%	2.9%	1.8%	.2%	2.5%	.60%	*****	.000
	.000	.084	.164	.239	.362	.448	.447	.283		
S/DEPTH=.1	*****	3.1%	3.1%	2.8%	1.7%	.2%	2.4%	.57%	*****	.000
	.000	.041	.081	.118	.179	.222	.221	.140		
S/DEPTH=.0	*****	3.0%	3.0%	2.7%	1.7%	.2%	2.4%	.000	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000		

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TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	10.0 .933 7.7%	20.0 .501 6.3%	30.0 .450 3.6%	50.0 .306 =5.0%	75.0 .087 =48.0%	100.0 .124 30.1%	130.0 .370 =5.6%	180.0 =.456 =9.7%
SURFACE	4.928	9.573	13.684	19.642	22.298	20.350	11.491	.000
S/DEPTH=1.0	15.8%	14.9%	13.4%	9.82%	2.8%	6.1%	=17.8%	*****
S/DEPTH=.9	13.6%	8.511	12.330	18.349	21.903			.000
S/DEPTH=.8	11.9%	7.366	10.687	15.985	19.269	18.555	11.055	*****
S/DEPTH=.7	10.4%	6.419	9.327	14.019	17.053	16.617	=16.7%	*****
S/DEPTH=.6	9.1%	5.642	8.210	12.395	15.204	14.0%	=13.9%	.000
S/DEPTH=.5	7.9%	5.010	7.299	11.066	13.678	13.597	=11.6%	*****
S/DEPTH=.4	6.8%	4.503	6.570	9.997	12.441	12.489	=9.6%	*****
S/DEPTH=.3	6.0%	4.107	5.999	9.159	11.465	11.571	=7.915	.000
S/DEPTH=.2	5.3%	3.811	5.570	8.528	10.727	10.887	7.421	*****
S/DEPTH=.1	4.7%	3.605	5.273	8.089	10.212	10.407	=6.7%	*****
S/DEPTH=.0	4.4%	3.483	5.097	7.830	9.907	10.122	5.7%	.000
S/DEPTH=.0	4.3%	3.443	5.039	7.745	9.806	10.028	7.039	*****
		4.1%	5.46%	2.6%	1.0%	=1.2%	=4.4%	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA ETA/HEIGHT	0 8.1%	5.44 7.7%	10.0 5.33	20.0 6.3%	30.0 4.50	50.0 3.06	75.0 1.87	100.0 1.24	130.0 3.6%	180.0 9.7%
SURFACE	=21.107	=20.581	=19.050	=16.650	=10.061	=7.754	7.273	14.975	17.142	
S/DEPTH=1.0	8.9%	8.3%	6.7%	3.7%	=8.3%	*****	21.5%	=5.4%	=12.8%	
S/DEPTH= .9	7.2%	6.8%	5.5%	=15.101	=9.526	=8.12				
S/DEPTH= .8	15.956	=15.620	=14.633	3.1%	=7.3%	*****	6.058	13.921	16.369	
S/DEPTH= .7	6.4%	6.1%	4.9%	=13.044	=8.411	=1.107	21.5%	=5.2%	=13.7%	
S/DEPTH= .6	13.550	=13.274	=12.461	2.8%	=6.3%	=125.6%	4.823	11.654	13.660	
S/DEPTH= .5	5.7%	5.4%	4.4%	=11.151	=7.319	=1.232	20.4%	4.0%	=12.1%	
S/DEPTH= .4	=11.375	=11.147	=10.482	2.5%	=5.4%	=85.1%	3.824	9.664	11.805	
S/DEPTH= .3	5.1%	4.8%	3.9%	=9.410	=6.266	=1.238	19.3%	=4.8%	=10.8%	
S/DEPTH= .2	=9.393	=9.211	=8.674	2.2%	=4.8%	=63.7%	3.007	7.903	9.365	
S/DEPTH= .1	4.6%	4.4%	3.5%	=7.807	=5.259	=1.161	18.3%	=4.0%	=9.7%	
S/DEPTH= .0	=4.580	=4.436	=3.701	1.9%	=4.3%	=50.8%	2.228	6.326	7.706	
S/DEPTH= .9	4.2%	3.9%	3.2%	=6.323	=4.299	=1.027	17.4%	3.6%	=8.8%	
S/DEPTH= .8	=5.903	=5.793	=5.466	1.7%	=3.9%	*****	1.752	4.895	5.994	
S/DEPTH= .7	3.9%	3.6%	2.9%	=4.939	=3.582	=855	16.7%	3.4%	=8.2%	
S/DEPTH= .6	=4.335	=4.255	=4.018	1.6%	=3.6%	*****	1.253	3.577	4.397	
S/DEPTH= .5	3.6%	3.4%	2.7%	=3.634	=2.502	=659	16.1%	3.0%	7.6%	
S/DEPTH= .4	=3.846	=3.794	=3.639	1.5%	=3.4%	*****	.807	2.341	2.885	
S/DEPTH= .3	3.4%	3.2%	2.5%	=2.390	=1.651	=447	*****	3.0%	7.3%	
S/DEPTH= .2	=3.410	=3.384	=3.308	1.4%	=3.2%	*****	.395	1.157	7.1%	
S/DEPTH= .1	3.3%	3.1%	2.3%	=1.185	=821	=225	*****	3.0%	7.1%	
S/DEPTH= .0	*****	*****	*****	1.3%	*****	*****	*****	*****	*****	
	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	*****	*****	*****	*****	*****	*****	*****	*****	*****	

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TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 S44 8.1%	10.0 533 7.7%	20.0 501 6.3%	30.0 450 3.8%	50.0 306 5.0%	75.0 287 48.0%	100.0 124 30.1%	130.0 370 3.6%	180.0 456 9.7%
SURFACE	6.686	6.439	5.740	4.711	2.332	.288	.198	2.594	4.108
S/DEPTH=1.0	5.3%	4.9%	3.7%	1.7%	-4.9%	****	****	3.0%	6.2%
S/DEPTH= .9	5.426	5.249	4.742	3.975	2.086	.280	.159	2.353	3.849
S/DEPTH= .8	3.82%	3.0%	2.2%	1.9%	-4.0%	****	****	3.3%	7.6%
S/DEPTH= .7	4.262	4.124	3.750	3.131	1.653	.228	.122	1.866	3.070
S/DEPTH= .6	2.8%	2.6%	1.9%	.8%	-3.5%	****	****	2.9%	6.5%
S/DEPTH= .5	3.355	3.247	2.939	2.471	1.312	.185	.094	1.477	2.440
S/DEPTH= .4	2.4%	2.1%	1.7%	.7%	-3.1%	****	****	2.6%	5.8%
S/DEPTH= .3	2.638	2.554	2.314	1.947	1.038	.149	.072	1.161	1.924
S/DEPTH= .2	2.82%	2.0%	1.5%	.6%	-2.7%	****	****	2.3%	5.1%
S/DEPTH= .1	2.063	1.998	1.810	1.525	.816	.118	.055	.899	1.495
S/DEPTH= .0	2.0%	1.8%	1.4%	.6%	-2.4%	****	****	2.0%	4.5%
S/DEPTH= .9	1.592	1.542	1.398	1.179	.632	.093	.041	.678	1.129
S/DEPTH= .8	1.6%	1.7%	1.5%	.5%	-2.1%	****	****	1.8%	4.2%
S/DEPTH= .7	1.197	1.159	1.051	.867	.477	.071	.029	.486	.810
S/DEPTH= .6	1.7%	1.6%	1.2%	.5%	-1.9%	****	****	1.6%	3.8%
S/DEPTH= .5	.855	.829	.752	.634	.342	.051	.019	.313	.523
S/DEPTH= .4	1.6%	1.5%	1.2%	.5%	-1.8%	****	****	1.5%	3.5%
S/DEPTH= .3	.551	.534	.484	.409	.220	.033	.009	.154	.257
S/DEPTH= .2	1.6%	1.5%	1.1%	.5%	****	****	****	1.4%	3.2%
S/DEPTH= .1	.270	.262	.237	.200	.108	.016	.000	.000	.000
S/DEPTH= .0	****	****	****	****	****	****	****	****	****
S/DEPTH= .9	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .8	****	****	****	****	****	****	****	****	****
S/DEPTH= .7	****	****	****	****	****	****	****	****	****
S/DEPTH= .6	****	****	****	****	****	****	****	****	****
S/DEPTH= .5	****	****	****	****	****	****	****	****	****
S/DEPTH= .4	****	****	****	****	****	****	****	****	****
S/DEPTH= .3	****	****	****	****	****	****	****	****	****
S/DEPTH= .2	****	****	****	****	****	****	****	****	****
S/DEPTH= .1	****	****	****	****	****	****	****	****	****
S/DEPTH= .0	****	****	****	****	****	****	****	****	****

TABLE VI DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

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TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA	0	10.0	20.0	30.0	40.0	50.0	60.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.544	.533	.501	.450	.306	.248	.180	.087	.0124	.0370	.456
	8.1%	7.7%	6.3%	3.6%	5.0%	5.0%	48.0%	30.1%	30.1%	3.6%	9.7%
SURFACE	4.801	4.612	4.080	3.307	1.577	.180	.128	.128	.128	.128	.128
S/DEPTH=1.0	6.7%	3.436	3.041	2.82%	1.525	.172	.128	.128	.128	.128	.128
S/DEPTH=.9	3.7%	3.4%	2.6%	1.1%	.47%	.122	.128	.128	.128	.128	.128
S/DEPTH=.8	2.177	2.209	2.077	1.741	.913	.122	.128	.128	.128	.128	.128
S/DEPTH=.7	1.604	1.552	1.404	1.178	.622	.086	.086	.086	.086	.086	.086
S/DEPTH=.6	2.6%	2.5%	1.9%	.7%	.36%	.059	.059	.059	.059	.059	.059
S/DEPTH=.5	2.4%	2.2%	1.6%	.6%	.31%	.039	.039	.039	.039	.039	.039
S/DEPTH=.4	2.1%	2.0%	1.5%	.510	.272	.039	.039	.039	.039	.039	.039
S/DEPTH=.3	1.8%	1.7%	1.3%	.318	.170	.025	.025	.025	.025	.025	.025
S/DEPTH=.2	1.8%	1.7%	1.3%	.187	.100	.015	.015	.015	.015	.015	.015
S/DEPTH=.1	1.8%	1.7%	1.3%	.098	.053	.008	.008	.008	.008	.008	.008
S/DEPTH=.0	1.8%	1.7%	1.3%	.041	.022	.003	.003	.003	.003	.003	.003
S/DEPTH=.0	1.8%	1.7%	1.3%	.010	.005	.001	.001	.001	.001	.001	.001
S/DEPTH=.0	1.8%	1.7%	1.3%	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.544	.501	.450	.306	.087	.370	.456
	8.1%	6.3%	3.8%	5.0%	48.0%	3.6%	9.7%
SURFACE	1.876	3.629	5.155	7.271	8.055	7.201	3.996
	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=1.0	12.2%	11.3%	9.9%	6.0%	.1%	5.4%	11.1%
	.000	2.694	4.208	6.341	7.750		
S/DEPTH=.9	9.7%	9.2%	8.3%	6.2%	1.8%	5.728	3.558
	.000	2.140	3.116	4.712	5.796		
S/DEPTH=.8	8.6%	8.2%	7.6%	5.5%	1.6%	5.32%	11.0%
	.000	1.555	2.266	3.437	4.253	4.233	2.659
S/DEPTH=.7	7.7%	7.3%	6.7%	4.9%	1.4%	2.82%	9.2%
	.000	1.103	1.609	2.447	3.044	3.049	1.934
S/DEPTH=.6	6.9%	6.6%	6.0%	4.4%	1.3%	2.52%	8.1%
	.000	.757	1.105	1.689	2.106	2.121	1.356
S/DEPTH=.5	5.9%	5.9%	5.4%	3.9%	1.2%	2.1%	7.2%
	.000	.495	.724	1.106	1.388	1.404	.904
S/DEPTH=.4	5.3%	5.3%	4.9%	3.5%	1.1%	1.9%	6.4%
	.000	.302	.441	.675	.850	.863	.559
S/DEPTH=.3	4.5%	.45%	.239	.366	1.0%	1.5%	5.7%
	.000	.163	.070	.158	.200	.204	.306
S/DEPTH=.2	4.0%	.070	.103	.158	.200	.204	.133
	.000	.036	.039	.039	.049	.050	.031
S/DEPTH=.1	.009	.017	.025	.039	.049	.050	.031
	.000	.009	.009	.009	.009	.009	.009
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000

CASE 7=A

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 8.1%	10.0 5.44 7.7%	20.0 3.0 5.01 6.3%	30.0 3.8%	50.0 5.0%	75.0 48.0%	100.0 30.1%	130.0 3.6%	180.0 9.7%
SURFACE	1.089	1.067	1.002	.900	.612	.175	.248	.740	.911
S/DEPTH=.0	4.9%	4.6%	3.7%	2.2%	-2.8%	-25.5%	15.1%	.17%	4.5%
S/DEPTH=.9	3.7%	3.5%	2.9%	1.8%	-2.3%	-24.0%	.214	.701	.880
S/DEPTH=.8	3.3%	3.1%	2.6%	1.7%	-1.8%	-16.8%	14.9%	.18%	5.1%
S/DEPTH=.7	2.9%	2.8%	2.3%	1.6%	-1.4%	-15.9%	13.8%	.13%	4.2%
S/DEPTH=.6	2.7%	2.5%	2.1%	1.5%	-1.0%	-11.9%	12.7%	.9%	3.3%
S/DEPTH=.5	2.4%	2.3%	2.0%	1.4%	-.7%	-.5%	11.7%	.5%	2.6%
S/DEPTH=.4	2.2%	2.1%	1.9%	1.4%	-.3%	-.1%	10.7%	.2%	2.0%
S/DEPTH=.3	2.1%	2.0%	1.8%	1.4%	-.2%	-.2%	9.9%	.1%	1.4%
S/DEPTH=.2	2.0%	1.9%	1.7%	1.4%	-.2%	-.1%	9.3%	.3%	1.0%
S/DEPTH=.1	1.9%	1.8%	1.6%	1.4%	-.2%	-.3%	8.7%	.5%	.7%
S/DEPTH=.0	1.9%	1.8%	1.6%	1.4%	-.3%	-.3%	8.3%	.6%	.4%

CASE 7-A

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.006	.011	.014	.015	.007	.005	.012	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.018	.017	.013	.007	.007	.020	.019	.007	.024
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7-a

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.899 (.11%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.494 (.11%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.501 (.17%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.995 (.10%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.673 (.7%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.676 (.7%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.997 (.6%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.844 (.3%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.171 (4.1%)

CASE 7a

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.009999	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.015081	STREAM FUNCTION	.000070
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.015900	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.024070	STREAM FUNCTION	.000114
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.137254	STREAM FUNCTION	.141447
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.096263	STREAM FUNCTION	.105035

CASE 7=B

5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .062090 DPT/LO = .199999
 H/DPT = .312451
 L/LO = .931055 PSI/(G*H*T) = -.008220

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.374631=01 X(2)/(H*T*G) = -.577025=03
 X(3)/(H*T*G) = -.126846=05 X(4)/(H*T*G) = .661276=07
 X(5)/(H*T*G) = .

CASE 7=B

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 15.7%	.593 15.7%	10.0 14.5%	20.0 10.6%	30.0 4.5%	40.0 4.5%	50.0 2.70	75.0 236.9%	100.0 43.1%	130.0 10.9%	180.0 245 -22.9%
SURFACE	4.702	4.867	4.188	3.627	2.841	.527	.038	2.161	2.567		
S/DEPTH=.1	8.1%	7.2%	4.3%	.3%	.152%	.825%	29.2%	8.2%	13.8%		
S/DEPTH=.1	4.169	4.083	3.832	3.431							
S/DEPTH=.1	3.7%	3.2%	1.6%	1.3%							
S/DEPTH=.1	3.636	3.566	3.334	3.014	2.035	.526					
S/DEPTH=.9	2.9%	2.4%	1.0%	1.5%	.116%	.739%					
S/DEPTH=.9	3.194	3.133	2.952	2.662	1.821	.509					
S/DEPTH=.6	2.825	2.772	2.616	2.366	1.638	.487					
S/DEPTH=.6	1.7%	1.3%	.3%	1.6%	.90%	.475%					
S/DEPTH=.7	2.519	2.473	2.337	2.120	1.482	.464					
S/DEPTH=.6	1.3%	1.0%	.1%	1.5%	.782%	.385%					
S/DEPTH=.6	2.266	2.227	2.108	1.916	1.352	.442					
S/DEPTH=.5	1.1%	.8%	.0%	1.4%	.67%	.315%					
S/DEPTH=.5	2.065	2.029	1.923	1.751	1.245	.421					
S/DEPTH=.4	1.906	1.874	1.777	1.621	.57%	.259%					
S/DEPTH=.4	1.9%	1.7%	.1%	.9%	.482%	.215%					
S/DEPTH=.3	1.787	1.757	1.667	1.523	1.094	.388					
S/DEPTH=.3	.8%	.7%	.2%	.7%	.41%	.182%					
S/DEPTH=.2	1.703	1.675	1.591	1.454	1.049	.377					
S/DEPTH=.1	1.654	1.626	1.545	.6%	.35%	.156%					
S/DEPTH=.1	1.6%	1.5%	.3%	1.414	1.021	.371					
S/DEPTH=.0	1.636	1.610	1.530	.4%	.32%	.144%					
S/DEPTH=.0	.9%	.7%	.3%	1.400	1.012	.369					
S/DEPTH=.0		.7%	.3%	.4%	.31%	.140%					

CASE 7=B

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD.....DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 15.7%	10.0 .593	20.0 10.8%	30.0 4.5%	50.0 .270	75.0 236.9%	100.0 43.1%	130.0 10.9%	180.0 22.9%
SURFACE	.000	.855	1.621	2.236	2.941	2.996	2.500	1.286	.000
8/DEPTH=1.1	*****	19.0%	16.8%	13.3%	4.3%	7.9%	18.4%	29.1%	*****
9/DEPTH=1.0	*****	.743	1.447	2.080					
9/DEPTH=.9	*****	14.1%	13.2%	11.7%					
8/DEPTH=.8	*****	.622	1.213	1.746					
9/DEPTH=.7	*****	12.3%	11.5%	10.1%	2.508	2.938	2.306		
8/DEPTH=.6	*****	.519	1.014	1.461	5.6%	5.2%	14.0%	1.125	.000
9/DEPTH=.5	*****	10.7%	10.0%	8.7%	2.143	2.494	13.0%	28.7%	.000
8/DEPTH=.4	*****	.432	.843	1.217	1.792	2.102	1.963	1.960	.000
9/DEPTH=.3	*****	9.4%	8.6%	7.5%	3.7%	3.5%	13.0%	25.9%	.000
8/DEPTH=.2	*****	.356	.696	1.005	1.485	1.754	1.652	23.7%	.000
9/DEPTH=.1	*****	.290	.567	.819	2.9%	3.6%	12.1%	1.804	.000
8/DEPTH=.0	*****	.231	.452	.654	2.3%	2.7%	11.4%	1.656	.000
9/DEPTH=.4	*****	.178	.349	.495	1.9%	1.7%	10.8%	21.9%	.000
8/DEPTH=.3	*****	.130	.255	.369	1.5%	1.7%	10.3%	20.5%	.000
9/DEPTH=.2	*****	.085	.166	.241	1.2%	1.7%	9.9%	19.5%	.000
8/DEPTH=.1	*****	.042	.082	.119	1.0%	1.7%	9.6%	18.7%	.000
9/DEPTH=.0	*****	.000	.000	.000	.9%	2.14	.207	1.25	.000
8/DEPTH=.0	*****	.000	.000	.000	*****	*****	*****	*****	.000

CASE 7=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

ETA/HEIGHT=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
0	.593	.576	.527	.453	.270	.038	.152	.535	.407
15.7%	15.7%	14.5%	10.8%	4.5%	-18.9%	-236.9%	43.1%	-10.9%	-22.9%
SURFACE	.000	6.618	12.485	17.094	22.044	21.783	17.554	8.577	.000
S/DEPTH#1.1	*****	32.0%	29.6%	25.7%	14.9%	-2.3%	-21.5%	-50.3%	*****
S/DEPTH#1.0	*****	5.751	11.164	15.930					
S/DEPTH# .9	*****	27.3%	26.1%	24.0%	19.360	21.448			
S/DEPTH# .8	*****	4.849	9.432	13.505	15.1%	1.4%	16.705		
S/DEPTH# .7	*****	24.6%	23.5%	21.5%	16.696	18.898			
S/DEPTH# .6	*****	4.116	8.023	11.525	13.42%	1.2%			
S/DEPTH# .5	*****	22.0%	21.0%	19.2%	14.506	16.748			
S/DEPTH# .4	*****	2.523	6.878	9.912	12.714	14.951			
S/DEPTH# .3	*****	19.6%	18.7%	17.1%	11.8%	1.1%			
S/DEPTH# .2	*****	3.043	5.953	8.605	10.4%	1.1%			
S/DEPTH# .1	*****	17.4%	16.6%	15.1%	9.12%	1.1%			
S/DEPTH# 0	*****	2.659	5.211	7.554	11.262	13.467			
S/DEPTH# .5	*****	15.3%	14.7%	13.4%	10.103	12.864			
S/DEPTH# .4	*****	2.356	4.625	6.722	8.2%	1.1%			
S/DEPTH# .3	*****	13.7%	13.0%	11.9%	9.201	11.314			
S/DEPTH# .2	*****	2.122	4.171	6.077	7.4%	1.2%			
S/DEPTH# .1	*****	12.2%	11.6%	10.6%	8.526	10.555			
S/DEPTH# 0	*****	1.948	3.834	5.597	6.7%	1.3%			
S/DEPTH# .5	*****	11.0%	10.5%	9.6%	8.058	10.045			
S/DEPTH# .4	*****	1.828	3.601	5.265	6.2%	1.4%			
S/DEPTH# .3	*****	11.1%	9.6%	8.6%	7.783	9.798			
S/DEPTH# .2	*****	1.758	3.465	5.071	6.0%	1.4%			
S/DEPTH# .1	*****	9.5%	9.1%	8.4%	6.692	9.700			
S/DEPTH# 0	*****	1.735	3.420	5.006	5.9%	1.4%			
S/DEPTH# .5	*****	9.4%	8.9%	8.2%					
S/DEPTH# .4	*****								
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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 7#B

TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD... DEFINED IN EQUATION (25)

THETA = ETA/HEIGHT	0 15.7%	10.0 14.5%	20.0 10.8%	30.0 4.5%	40.0 4.5%	50.0 236.9%	60.0 7.0	70.0 100.0	80.0 130.0	90.0 180.0
SURFACE	8.601	8.162	6.982	5.386	2.262	.191	.235	.235	.2112	.15.148
S/DEPTH=1.1	11.0%	9.6%	5.4%	1.3%	22.1%	*****	*****	*****	.09.9%	.15.3%
S/DEPTH=1.0	6.926	6.670	5.945	4.867	1.876	.188	.201	.201	.1.722	.2.700
S/DEPTH=.9	3.6%	2.9%	2.4%	2.8%	1.57%	*****	.161	.161	.11.5%	.21.2%
S/DEPTH=.8	5.066	5.211	4.657	3.831	1.505	.136	.151	.151	.11.374	.2.176
S/DEPTH=.7	4.242	4.092	3.666	3.027	1.206	.114	.114	.114	.10.2%	.18.6%
S/DEPTH=.6	3.359	3.223	2.892	2.397	.964	.093	.086	.086	.1.088	.1.736
S/DEPTH=.5	2.0%	1.5%	2.280	1.895	.763	.075	.065	.065	.09.1%	.16.5%
S/DEPTH=.4	2.627	2.537	1.784	1.489	.595	.058	.048	.048	.08.1%	.14.8%
S/DEPTH=.3	1.7%	1.3%	1.382	1.153	.451	.042	.034	.034	.07.4%	.13.5%
S/DEPTH=.2	1.5%	1.2%	1.041	.870	.324	.028	.021	.021	.06.8%	.12.0%
S/DEPTH=.1	1.5%	1.2%	.745	.623	.210	.014	.010	.010	.05.9%	.11.9%
S/DEPTH=.0	1.5%	1.2%	.481	.402	.103	.000	.000	.000	.04.7%	.0.238
S/DEPTH=.0	1.5%	1.2%	.236	.197	.000	.000	.000	.000	.0.000	.0.000
S/DEPTH=.0	1.5%	1.2%	.000	.000	.000	.000	.000	.000	.0.000	.0.000

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .593 15.7%	10.0 .576 14.5%	20.0 .527 10.8%	30.0 .453 4.5%	50.0 .270 18.9%	75.0 .038 236.9%	100.0 .152 43.1%	130.0 -0.345 -10.9%	180.0 -0.407 -22.9%
SURFACE	.000	3.679	6.995	9.696	12.959	13.607	11.767	6.360	.000
S/DEPTH=1.1	*****	22.5%	20.3%	17.0%	8.5%	3.5%	13.6%	-24.1%	*****
	.000	3.186	6.233	9.008					
S/DEPTH=1.0	*****	17.9%	17.0%	15.5%					
	.000	2.658	5.206	7.540	11.213	13.348			
S/DEPTH=.9	*****	16.3%	15.4%	14.1%	9.8%	1.1%	10.870		
	.000	2.211	4.335	6.292	9.015	11.534	9.2%	5.565	.000
S/DEPTH=.8	*****	14.8%	14.1%	12.9%	8.9%	1.1%	9.276	-21.6%	*****
	.000	1.830	3.592	5.223	7.858	9.555	8.1%	4.781	.000
S/DEPTH=.7	*****	13.6%	12.9%	11.6%	8.1%	1.1%	7.820	-20.9%	*****
	.000	1.502	2.952	4.299	6.500	7.972	7.2%	4.015	.000
S/DEPTH=.6	*****	12.5%	11.9%	10.9%	7.5%	1.1%	6.485	-18.8%	*****
	.000	1.218	2.396	3.493	5.304	6.554	6.4%	3.286	.000
S/DEPTH=.5	*****	11.6%	11.1%	10.1%	7.0%	1.2%	5.252	-17.1%	*****
	.000	.968	1.905	2.781	4.238	5.270	5.6%	2.588	.000
S/DEPTH=.4	*****	10.9%	10.4%	9.5%	6.8%	1.2%	4.103	-15.8%	*****
	.000	.745	1.466	2.143	3.275	4.093	3.020	1.917	.000
S/DEPTH=.3	*****	10.3%	9.8%	9.0%	6.3%	1.2%	3.020	-14.4%	*****
	.000	.541	1.067	1.560	2.390	2.999	2.66	.630	.000
S/DEPTH=.2	*****	9.4%	9.4%	8.6%	6.1%	1.3%	1.986	-14.1%	*****
	.000	.353	.696	1.018	1.563	1.966	.985	.000	.000
S/DEPTH=.1	*****	9.1%	9.1%	8.3%	5.9%	1.3%	.85	*****	*****
	.000	.174	.343	.503	.772	.973	.44%	.000	.000
S/DEPTH=.0	*****	*****	*****	*****	5.8%	1.3%	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VII—DIMENSIONLESS DRAG MOMENT COMPONENT FIELD... DEFINED IN EQUATION (27)

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.593	.576	.527	.453	.270	.038	.0152	.0345	.0407
	15.7%	14.5%	10.8%	4.5%	18.9%	236.9%	43.1%	10.9%	22.9%
SURFACE	.000	2.691	5.018	6.753	8.352	7.879	6.183	2.998	.000
S/DEPTH=1.1	*****	27.3%	24.4%	20.0%	8.1%	7.0%	16.9%	28.0%	*****
	.000	2.129	4.155	5.982					
S/DEPTH=1.0	*****	20.5%	19.5%	17.8%					
	.000	1.573	3.075	4.459	6.531	7.618			
S/DEPTH=.9	*****	18.6%	17.7%	16.1%	11.1%	1.1%			
	.000	1.146	2.247	3.251	4.820	5.703	5.353		
S/DEPTH=.8	*****	16.8%	16.0%	14.6%	10.0%	1.1%			
	.000	.824	1.615	2.341	3.495	4.189	3.096		
S/DEPTH=.7	*****	15.2%	14.5%	13.2%	9.1%	1.0%			
	.000	.578	1.134	1.648	2.475	3.001	2.903	1.739	
S/DEPTH=.6	*****	13.8%	13.2%	12.0%	8.5%	1.1%			
	.000	.393	1.271	1.123	1.696	2.078	2.035	1.241	
S/DEPTH=.5	*****	12.0%	12.0%	11.0%	7.6%	1.1%			
	.000	.255	.501	.731	1.109	1.370	1.356	.839	
S/DEPTH=.4	*****	11.0%	11.0%	10.1%	7.0%	1.2%			
	.000	.154	.303	.443	.675	.840	.838	.525	.000
S/DEPTH=.3	*****	10.0%	10.0%	9.4%	6.6%	1.2%			
	.000	.083	.163	.238	.365	.457	.458	.290	.000
S/DEPTH=.2	*****	9.0%	9.0%	8.4%	6.0%	1.3%			
	.000	.036	.070	.103	.157	.198	.200	.127	.000
S/DEPTH=.1	*****	8.0%	8.0%	7.4%	5.2%	1.3%			
	.000	.009	.017	.025	.039	.049	.049	.032	.000
S/DEPTH=.0	*****	7.0%	7.0%	6.4%	4.4%	1.3%			
	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE IX-DINENSTONLF88 DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.031	.057	.073	.072	.030	.010	.042	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.027	.025	.017	.006	.020	.041	.033	.020	.053
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.931 (4.5%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.074 (5.4%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.092 (7.2%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.066 (6.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.082 (3.5%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.706 (2.7%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.980 (2.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.858 (.3%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.176 (15.2%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.044026	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.030558	STREAM FUNCTION	.000017
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.077744	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.053135	STREAM FUNCTION	.000046
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.303566	STREAM FUNCTION	.315574
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.182946	STREAM FUNCTION	.213470

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7TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS
 L0 = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $L0=(G/6.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/L0 = .093785 DPT/L0 = .19999
 H/DPT = .468925
 L/L0 = .981055 PSI/(G*H*T) = -.010950

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.369772*01 X(2)/(H*T*G) = -.111087*02
 X(3)/(H*T*G) = -.220372*04 X(4)/(H*T*G) = -.591014*06
 X(5)/(H*T*G) = -.517059*07 X(6)/(H*T*G) = -.357964*08
 X(7)/(H*T*G) = -.424772*09

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TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .653 23.4%	10.0 -616 20.1%	20.0 -528 11.0%	30.0 -420 -3.1%	50.0 -207 -55.6%	75.0 -010 *****	100.0 -165 47.3%	130.0 -305 -25.4%	180.0 -347 -44.0%
SURFACE	5.653	5.313	4.812	3.978	1.847	.208	-.886	-.1812	-.2072
S/DEPTH=1.3	15.3%	11.7%	2.1%	5.112%	49.2%	*****	34.2%	20.2%	28.8%
S/DEPTH=1.2	4.764	4.619	4.209						
S/DEPTH=1.1	4.0%	2.5%	3.052						
S/DEPTH=1.0	4.091	3.977	3.3%	3.155					
S/DEPTH=.9	1.9%	.6%	3.188	10.2%	2.782				
S/DEPTH=.8	3.542	3.451	4.1%	2.046	1.682				
S/DEPTH=.7	3.093	3.019	2.803	10.0%	34.3%	.252	-.852		
S/DEPTH=.6	2.726	2.664	4.7%	9.7%	29.9%	*****	36.3%	1.719	2.014
S/DEPTH=.5	1.987	2.428	5.0%	9.3%	26.1%	*****	33.2%	23.7%	32.6%
S/DEPTH=.4	3.0%	3.1%	5.2%	8.7%	1.301	*****	30.6%	21.0%	32.9%
S/DEPTH=.3	1.721	2.137	2.005	8.1%	22.8%	11.52%	30.2%	21.573	32.8%
S/DEPTH=.2	2.9%	3.4%	4.8%	6.1%	19.9%	88.9%	27.3%	18.5%	28.6%
S/DEPTH=.1	1.642	1.948	1.832	1.648	1.121	.311	1.347	1.639	1.639
S/DEPTH=.0	1.580	1.835	1.697	7.52%	17.4%	70.5%	24.6%	16.1%	24.8%
	3.0%	3.4%	4.7%	1.552	1.054	.311	-.422	1.265	1.553
	2.9%	3.3%	4.4%	6.9%	15.2%	57.4%	22.2%	14.4%	21.1%
	2.8%	3.2%	4.3%	6.3%	13.5%	48.2%	20.2%	12.8%	19.2%
	2.6%	3.1%	4.1%	5.8%	12.2%	42.1%	18.6%	11.7%	17.3%
	2.4%	2.9%	3.9%	5.345	.946	.306	-.346	1.132	1.411
	2.3%	2.8%	3.8%	4.8%	11.4%	33.5%	17.7%	11.0%	16.2%
	2.2%	2.7%	3.7%	4.333	.939	.306	-.341	1.123	1.401
	2.1%	2.6%	3.6%	5.4%	11.2%	37.4%	17.3%	10.7%	15.9%

VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT	0 .653 23.4%	10.0 20.1%	20.0 11.0%	30.0 3.1%	50.0 55.6%	75.0 207 *****	100.0 165 47.3%	130.0 305 25.1%	180.0 347 44.0%
SURFACE	.000	11.228	18.598	22.164	23.029	19.010	13.470	5.745	.000
S/DEPTH1.3	*****	56.1%	48.7%	38.3%	14.1%	19.5%	56.5%	114.6%	*****
S/DEPTH1.2	*****	9.057	16.745						
S/DEPTH1.1	*****	48.2%	44.6%	18.371					
S/DEPTH1.0	*****	43.5%	40.4%	35.5%	15.227				
S/DEPTH.9	*****	39.1%	36.4%	32.1%	16.4%	17.109	13.296		
S/DEPTH.8	*****	35.0%	32.6%	28.8%	16.6%	8.3%	47.6%		
S/DEPTH.7	*****	31.2%	29.1%	25.7%	14.9%	15.357	12.522		
S/DEPTH.6	*****	27.7%	25.4%	22.9%	13.3%	6.9%	39.6%	5.806	.000
S/DEPTH.5	*****	24.6%	23.0%	20.3%	11.9%	12.585	33.1%	108.0%	*****
S/DEPTH.4	*****	21.8%	20.4%	18.1%	10.7%	11.775	33.1%	86.6%	*****
S/DEPTH.3	*****	19.5%	18.2%	16.2%	9.7%	11.090	27.8%	5.808	.000
S/DEPTH.2	*****	17.6%	16.3%	14.7%	8.9%	10.488	23.6%	70.8%	*****
S/DEPTH.1	*****	16.2%	15.2%	13.6%	8.3%	11.541	58.9%	5.743	.000
S/DEPTH.0	*****	15.3%	14.4%	12.9%	7.9%	10.708	49.9%	5.865	.000
	*****	1.733	3.409	4.974	7.548	9.363	17.5%	49.9%	*****
	*****	15.0%	14.1%	12.7%	7.9%	9.125	43.4%	5.590	.000
	*****					9.299	38.9%	5.530	.000
	*****					1.9%	36.3%	5.490	.000
	*****					9.276	34.5%	5.477	.000
	*****					1.5%	35.4%	*****	

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA #	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT#	.653	.616	.528	.420	.207	.010	.305	.347
	23.4%	20.1%	11.0%	-3.1%	55.6%	47.3%	25.4%	44.0%
SURFACE	11.311	10.232	7.835	5.329	1.759	.087	1.589	2.242
S/DEPTH#1.3	18.0%	12.8%	.9%	20.8%	77.3%	*****	26.8%	34.6%
S/DEPTH#1.2	8.041	6.929						
S/DEPTH#1.1	2.8%	8.6%	5.388	4.232				
S/DEPTH#1.0	2.8%	4.4%	9.4%	18.3%				
S/DEPTH# .9	4.824	4.221	3.323	1.456				
S/DEPTH# .8	5.8%	3.326	2.666	46.0%		.239		
S/DEPTH# .7	6.3%	10.0%	16.5%	43.3%	.082	*****	1.412	2.087
S/DEPTH# .6	2.975	2.629	2.123	97.6	.075	*****	36.0%	44.6%
S/DEPTH# .5	2.342	2.078	1.687	38.6%	.066	*****	1.142	1.710
S/DEPTH# .4	5.9%	6.9%	14.7%	34.7%	.057	*****	32.8%	50.9%
S/DEPTH# .3	1.907	1.835	1.332	.635	.057	*****	1.914	1.384
S/DEPTH# .2	6.1%	6.9%	13.9%	31.6%	*****	*****	29.8%	46.1%
S/DEPTH# .1	1.474	1.419	1.036	.500	.048	*****	.719	1.098
	6.0%	6.8%	13.2%	*****	.048	*****	27.6%	42.3%
	1.110	1.069	.955	.784	.038	*****	.2548	.044
	6.0%	6.7%	8.8%	12.5%	*****	*****	39.8%	39.8%
	7.94	7.66	.684	.563	.277	.028	.397	.613
	5.9%	6.5%	8.5%	*****	*****	*****	*****	37.2%
	.513	.494	.442	.364	.180	.019	.258	.400
	*****	*****	*****	*****	*****	*****	*****	*****
	.251	.242	.217	.179	.089	.009	.127	.197
	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

STABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)			
THETA =	0	10.0	20.0
ETA/HEIGHT =	0.53	0.66	0.82
	23.0%	20.1%	11.0%
		3.1%	55.6%

			47.3%

			50.0
			75.0
			100.0

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD....DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 23.4%	10.0 20.1%	20.0 11.0%	30.0 5.1%	50.0 55.6%	75.0 47.3%	100.0 47.3%	130.0 25.4%	180.0 44.0%
SURFACE	10.622	9.399	6.807	4.304	1.201	.041	.158	.797	.1,069
S/DEPTH=1.03	25.6%	19.5%	2.6%	23.0%	100.9%	*****	*****	24.4%	27.1%
S/DEPTH=1.2	23.8%	7.023	5.697						
S/DEPTH=1.1	1.7%	4.772	1.5%	3.042					
S/DEPTH=1.0	3.243	3.098	9.1%	19.7%	.883				
S/DEPTH= .9	3.15%	5.1%	10.0%	18.9%	57.1%	.036	.142		
S/DEPTH= .8	4.7%	6.1%	10.3%	18.0%	50.1%	*****	*****	.650	.942
S/DEPTH= .7	5.15%	1.418	10.2%	16.9%	447	.030	.090	40.7%	44.3%
S/DEPTH= .6	5.9%	7.0%	10.2%	15.9%	.309	.023	.056	.447	.659
S/DEPTH= .5	6.1%	7.0%	9.5%	14.1	.207	.017	.035	.299	57.7%
S/DEPTH= .4	6.3%	7.0%	9.5%	12.8	*****	*****	*****	*****	.447
S/DEPTH= .3	6.3%	7.0%	9.5%	10.6	.133	.012	.021	.191	*****
S/DEPTH= .2	6.3%	7.0%	9.5%	10.6	*****	*****	*****	*****	.289
S/DEPTH= .1	6.3%	7.0%	9.5%	10.6	*****	*****	*****	*****	*****
S/DEPTH= .0	6.3%	7.0%	9.5%	10.6	*****	*****	*****	*****	*****

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TABLE VII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 .653 23.4%	10.0 .616 20.1%	20.0 .528 11.0%	30.0 .420 =3.1%	50.0 .207 =55.6%	75.0 =.010 *****	100.0 =.165 47.3%	130.0 =.365 =25.4%	180.0 =.347 =44.0%
SURFACE	.000	4.491	7.434	8.777	8.761	6.925	4.846	2.109	.000
S/DEPTH=1.3	*****	48.4%	40.0%	28.5%	2.2%	=27.5%	=46.9%	=56.4%	*****
S/DEPTH=1.2	*****		6.403						
S/DEPTH=1.1	*****	3.371	34.0%	6.525					
S/DEPTH=1.0	*****	36.6%	4.667	27.0%					
S/DEPTH=.9	*****	2.439	30.8%	4.764	6.588				
S/DEPTH=.8	*****	33.1%	3.379	24.5%	14.1%	5.296	4.569		
S/DEPTH=.7	*****	1.756	27.8%	3.439	12.8%	=5.4%	=31.2%	1.837	.000
S/DEPTH=.6	*****	29.9%	1.253	22.2%	11.7%	3.917	3.471	=68.6%	.000
S/DEPTH=.5	*****	27.0%	1.712	2.444	10.8%	4.6%	=27.3%	=59.7%	.000
S/DEPTH=.4	*****	24.4%	22.8%	20.2%	2.465	2.822	2.560	1.399	.000
S/DEPTH=.3	*****	22.2%	20.1%	18.4%	1.700	3.8%	=24.0%	1.021	.000
S/DEPTH=.2	*****	22.2%	19.0%	16.8%	1.147	1.963	1.816	.000	.000
S/DEPTH=.1	*****	20.1%	17.5%	15.5%	9.9%	3.3%	=21.2%	=32.6%	.000
S/DEPTH=.0	*****	17.5%	15.7%	14.5%	9.3%	1.299	1.223	=7.0%	.000
S/DEPTH=.3	*****	.084	.164	.239	.666	.799	.762	.446	.000
S/DEPTH=.2	*****	.036	.070	.102	.8%	=2.4%	=17.3%	*****	.000
S/DEPTH=.1	*****	.009	.017	.025	.155	.189	.20	.249	.000
S/DEPTH=.0	*****	.000	.000	.000	.038	.047	.045	.07	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7=C

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD....DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.653	.616	.528	.420	.207	.010	.165	.305	.347
	23.4%	20.1%	11.0%	3.1%	55.0%	*****	47.3%	25.6%	44.0%
SURFACE	1.305	1.233	1.056	.840	.413	-.021	-.329	-.611	-.695
	19.6%	16.7%	9.0%	2.0%	36.0%	*****	21.4%	12.1%	18.9%
S/DEPTH=1.3	1.297								
	19.1%								
S/DEPTH=1.2	1.166	1.126	1.013						
	12.6%	11.2%	6.7%						
S/DEPTH=1.1	1.044	1.013	.922	.762					
	10.8%	9.6%	5.9%	.9%					
S/DEPTH=1.0	.936	.910	.836	.721	.410				
	9.2%	8.1%	5.0%	.6%	25.0%				
S/DEPTH=.9	.840	.819	.758	.663	.399	.020	.314	.575	.673
	7.8%	6.9%	4.2%	.5%	20.7%	*****	28.5%	15.6%	22.7%
S/DEPTH=.8	.757	.740	.689	.609	.384	.050	.257	.520	.619
	6.6%	5.9%	3.6%	.4%	17.0%	*****	31.0%	15.3%	22.6%
S/DEPTH=.7	.686	.672	.629	.561	.367	.071	.211	.473	.574
	5.7%	5.0%	3.1%	.3%	14.2%	128.5%	33.7%	11.0%	17.4%
S/DEPTH=.6	.627	.615	.578	.520	.350	.086	.175	.435	.535
	4.9%	4.4%	2.7%	.2%	12.0%	88.9%	36.6%	13.1%	13.1%
S/DEPTH=.5	.578	.568	.536	.485	.335	.096	.147	.422	.504
	4.4%	3.9%	2.5%	.1%	10.2%	67.5%	39.8%	11.4%	17.4%
S/DEPTH=.4	.540	.530	.502	.456	.322	.102	.126	.405	.480
	4.0%	3.6%	2.3%	.1%	8.8%	54.6%	43.0%	9.9%	13.1%
S/DEPTH=.3	.510	.501	.476	.434	.311	.106	.110	.382	.464
	3.8%	3.4%	2.2%	.2%	7.7%	46.4%	46.1%	8.6%	11.4%
S/DEPTH=.2	.489	.481	.458	.419	.303	.109	.100	.366	.442
	3.6%	3.3%	2.2%	.1%	6.9%	41.3%	48.8%	7.4%	10.8%
S/DEPTH=.1	.477	.469	.447	.410	.298	.110	.094	.356	.433
	3.5%	3.2%	2.2%	.1%	6.5%	38.6%	50.6%	6.7%	10.8%
S/DEPTH=.0	.473	.465	.443	.407	.297	.111	.092	.353	.430
	3.5%	3.2%	2.2%	.1%	6.5%	37.7%	51.2%	6.7%	10.8%

CASE 7=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.105	.185	.225	.198	.073	.039	.084	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.025	.021	.011	.005	.039	.062	.043	.041	.087
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 7=C

TABLE X:OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.981 (9.4%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.426 (17.3%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.461 (21.5%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.887 (19.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.665 (13.4%)
(6)	DIPENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.749 (5.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.917 (10.6%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.838 (4.9%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.174 (27.7%)

CASE 7=C

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.119668	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047489	STREAM FUNCTION	.000066
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.229930	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.087129	STREAM FUNCTION	.000178
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.505160	STREAM FUNCTION	.540404
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.254826	STREAM FUNCTION	.316274

ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 7=D

9TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g \cdot 28310) \cdot T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .12492 DPT/LO = .19999

H/DPT = .622465

L/LO = 1.035156 PSI/(G*H*T) = -.010896

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) =	-.332090E+01	X(2)/(H*T*G) =	-.145664E+02
X(3)/(H*T*G) =	-.636587E+04	X(4)/(H*T*G) =	-.351129E+05
X(5)/(H*T*G) =	-.400131E+06	X(6)/(H*T*G) =	-.323351E+07
X(7)/(H*T*G) =	-.807128E+08	X(8)/(H*T*G) =	-.231839E+08
X(9)/(H*T*G) =	-.564928E+09		

CASE 7=D

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.724	.580	.443	.326	.137	.033	.017	.027	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	81.2%
SURFACE	7.622	5.536	3.976	2.884	1.276	.004	.789	1.435	1.607
S/DEPTH=1.4	30.4%	6.2%	22.3%	50.7%	130.5%	*****	27.3%	42.9%	52.8%
S/DEPTH=1.3	5.323	4.946	3.586	2.873					
S/DEPTH=1.2	1.8%	4.156	19.9%	37.9%					
S/DEPTH=1.1	4.3%	8.4%	3.125	2.564					
S/DEPTH=1.0	3.692	3.536	20.7%	35.8%					
S/DEPTH=0.9	8.7%	11.8%	22.7%	2.888	1.226				
S/DEPTH=0.8	3.155	3.042	21.5%	33.7%	85.3%		.778		
S/DEPTH=0.7	12.0%	2.647	22.1%	32.4%	1.158	.061	30.3%	1.372	1.577
S/DEPTH=0.6	14.3%	16.2%	22.3%	30.8%	73.5%	.116	27.4%	48.4%	100.0%
S/DEPTH=0.5	15.9%	17.5%	22.3%	30.8%	63.9%	*****		1.270	1.480
S/DEPTH=0.4	2.125	2.070	19.1%	1.667	1.023	.155	24.6%	46.9%	65.9%
S/DEPTH=0.3	17.0%	18.2%	22.8%	29.1%	56.2%	.182	21.8%	45.3%	60.7%
S/DEPTH=0.2	1.909	1.863	1.729	1.522	.963	*****	21.8%	45.3%	60.7%
S/DEPTH=0.1	17.5%	18.6%	21.9%	27.6%	49.8%	.200	19.2%	41.2%	54.5%
S/DEPTH=0.0	1.738	1.698	1.584	1.405	.910	*****	19.2%	41.2%	54.5%
S/DEPTH=0.0	17.7%	18.6%	21.8%	26.8%	44.5%	.212	19.2%	41.2%	54.5%
S/DEPTH=0.0	1.606	1.571	1.470	1.311	.867	*****	16.8%	37.8%	46.3%
S/DEPTH=0.0	17.7%	18.5%	20.8%	24.8%	40.2%	.219	16.8%	37.8%	46.3%
S/DEPTH=0.0	1.507	1.476	1.385	1.240	.832	*****	16.8%	37.8%	46.3%
S/DEPTH=0.0	17.6%	18.2%	20.2%	23.7%	36.8%	*****	16.8%	37.8%	46.3%
S/DEPTH=0.0	1.439	1.410	1.326	1.191	.808	.224	16.8%	37.8%	46.3%
S/DEPTH=0.0	17.4%	17.9%	19.7%	22.8%	34.4%	*****	16.8%	37.8%	46.3%
S/DEPTH=0.0	1.399	1.371	1.291	1.162	.793	.226	16.8%	37.8%	46.3%
S/DEPTH=0.0	17.2%	17.6%	19.4%	22.2%	32.9%	*****	16.8%	37.8%	46.3%
S/DEPTH=0.0	1.386	1.358	1.279	1.152	.788	.227	16.8%	37.8%	46.3%
S/DEPTH=0.0	17.2%	17.7%	19.3%	22.0%	32.4%	*****	16.8%	37.8%	46.3%

CASE 7=D

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (22)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHTS	.724	.980	.443	.326	.137	.033	.147	.247	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	61.2%
SURFACE	.000	1.627	2.348	2.554	2.486	2.011	1.430	.632	.000
S/DEPTH=1.4	*****	52.3%	26.4%	7.0%	31.8%	71.1%	98.2%	114.1%	*****
S/DEPTH=1.3	*****								
S/DEPTH=1.2	*****	1.478	1.954	2.837					
S/DEPTH=1.1	*****	32.2%	25.1%	15.7%	1.379	1.795	1.414	.599	.000
S/DEPTH=1.0	*****	24.5%	19.0%	11.2%	3.2%	13.9%	44.7%	.525	.000
S/DEPTH=.9	*****	18.0%	13.7%	7.0%	1.125	1.495	1.232	.450	.000
S/DEPTH=.8	*****	12.7%	9.0%	3.2%	.811	1.095	.890	.375	.000
S/DEPTH=.7	*****	8.2%	5.0%	1.1%	.654	1.278	.729	.113.5%	.000
S/DEPTH=.6	*****	4.5%	1.7%	.2%	.523	1.006	.575	.299	.000
S/DEPTH=.5	*****	1.4%	1.1%	.5%	.412	.803	.427	.224	.000
S/DEPTH=.4	*****	.163	.342	.7%	.315	.620	.375	.149	.000
S/DEPTH=.3	*****	.118	.228	.8%	.228	.492	.282	.107.8%	.000
S/DEPTH=.2	*****	.077	.148	.9.6%	.210	.393	.247	.103.4%	.000
S/DEPTH=.1	*****	.038	.073	10.8%	.104	.38.9%	.140	100.4%	.000
S/DEPTH=.0	*****	.000	.000	*****	*****	*****	*****	*****	.000

CASE 7=D

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	160.0
ETA/HEIGHT=	.724	.580	.443	.326	.137	.033	.147	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	81.2%
SURFACE	.000	23.658	23.538	22.450	19.677	14.544	9.342	3.816
	*****	77.4%	55.9%	35.4%	6.1%	59.4%	123.1%	211.3%
S/DEPTH=1.4	.000							*****
S/DEPTH=1.3	.000	18.340						*****
	*****	71.1%						*****
S/DEPTH=1.2	.000	12.608	19.672	22.725				*****
	*****	63.6%	53.8%	41.2%				*****
S/DEPTH=1.1	.000	9.113	15.412	18.874				*****
	*****	56.3%	48.9%	38.5%				*****
S/DEPTH=1.0	.000	6.857	12.158	15.517	17.443			*****
	*****	49.6%	43.7%	34.9%	9.0%			*****
S/DEPTH= .9	.000	5.321	9.715	12.782	15.146	13.546	9.340	*****
	*****	43.4%	38.6%	31.1%	18.3%	35.7%	111.2%	*****
S/DEPTH= .8	.000	4.234	7.882	10.613	13.181	12.402	9.196	*****
	*****	37.8%	33.8%	27.3%	7.3%	31.2%	91.1%	*****
S/DEPTH= .7	.000	3.444	6.501	8.915	11.532	11.383	8.932	*****
	*****	32.8%	29.3%	23.7%	6.2%	27.4%	76.6%	*****
S/DEPTH= .6	.000	2.862	5.459	7.597	10.178	10.495	8.627	*****
	*****	28.3%	25.4%	20.5%	5.1%	24.2%	65.5%	*****
S/DEPTH= .5	.000	2.431	4.675	6.584	9.089	9.744	8.327	*****
	*****	24.1%	21.9%	17.6%	4.2%	21.5%	56.8%	*****
S/DEPTH= .4	.000	2.115	4.094	5.822	8.238	9.131	8.056	*****
	*****	21.3%	19.0%	15.3%	3.4%	19.3%	50.1%	*****
S/DEPTH= .3	.000	1.889	3.675	5.266	7.603	8.657	7.832	*****
	*****	18.7%	16.7%	13.4%	2.9%	17.5%	49.0%	*****
S/DEPTH= .2	.000	1.738	3.393	4.889	7.163	8.519	7.686	*****
	*****	16.8%	15.0%	12.0%	2.2%	16.2%	41.5%	*****
S/DEPTH= .1	.000	1.651	3.230	4.671	6.904	8.118	7.564	*****
	*****	15.6%	14.0%	11.2%	2.2%	15.4%	39.4%	*****
S/DEPTH= .0	.000	1.622	3.177	4.599	6.619	8.051	7.529	*****
	*****	15.3%	13.6%	10.9%	2.2%	15.2%	38.7%	*****

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

370

TABLE V DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

371

TABLE VI. DIMENSIONLESS INERTIA FORCE COMPONENT FIELD, ... DEFINED IN EQUATION (26)

372

CASE 7=0

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.724	.560	.443	.326	.137	.033	.017	.027	.276
	31.0%	15.1%	6.1%	32.7%	134.7%	*****	41.0%	55.3%	81.2%
SURFACE	17.042	10.013	5.528	2.987	.669	.012	.0126	.0508	.663
	39.0%	1.0%	55.3%	124.9%	*****	*****	*****	*****	*****
S/DEPTH#1.4	13.360								
	22.2%								
S/DEPTH#1.3	6.546	7.788							
	16.9%	24.4%	4.189	2.955					
S/DEPTH#1.2	5.614	5.205	4.47.1%	77.1%					
	24.3%	30.0%	2.894	2.105					
S/DEPTH#1.1	3.743	3.907	48.1%	73.0%					
	29.7%	34.2%	1.993	1.486					
S/DEPTH#1.0	2.515	2.373	1.086		.529				
	33.4%	37.2%	68.7%	69.1%	*****	.012	.122		
S/DEPTH# .9	1.693	1.605	1.167	1.000	394	*****	*****	.433	.605
	35.9%	39.0%	48.7%	66.0%	*****	*****	*****	*****	*****
S/DEPTH# .8	1.134	1.080	.929	.718	.286	.011	.077	.433	.605
	37.5%	40.1%	48.2%	*****	*****	*****	*****	.303	.430
S/DEPTH# .7	.782	.717	.622	.487	.203	.010	.049	.303	.430
	*****	*****	*****	*****	*****	*****	*****	.205	.295
S/DEPTH# .6	.487	.466	.407	.322	.139	.008	.030	.205	.295
	*****	*****	*****	*****	*****	*****	*****	.194	.194
S/DEPTH# .5	.305	.292	.256	.204	.090	.006	.018	.132	.194
	*****	*****	*****	*****	*****	*****	*****	.080	.118
S/DEPTH# .4	.179	.172	.151	.121	.055	.004	.010	.080	.118
	*****	*****	*****	*****	*****	*****	*****	.043	.064
S/DEPTH# .3	.094	.090	.080	.064	.030	.002	.005	.043	.064
	*****	*****	*****	*****	*****	*****	*****	.018	.028
S/DEPTH# .2	.040	.038	.034	.027	.013	.001	.002	.018	.028
	*****	*****	*****	*****	*****	*****	*****	.005	.007
S/DEPTH# .1	.010	.009	.008	.007	.003	.000	.001	.005	.007
	*****	*****	*****	*****	*****	*****	*****	.000	.000
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VIII—DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (26)

374

CASE 7=0

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT=	0 724 31.0%	10.0 580 15.1%	20.0 443 6.1%	30.0 326 32.7%	50.0 137 134.7%	75.0 033 *****	100.0 147 41.0%	130.0 247 55.3%	180.0 276 81.2%
SURFACE	1.377	1.167	.904	.673	.282	.062	.296	.501	.564
S/DEPTH=1.4	26.7%	15.5%	1.5%	20.4%	82.2%	*****	11.6%	25.4%	32.6%
S/DEPTH=1.3	24.2%	1.118	.868	.672	.300	.026	.292	.480	.552
S/DEPTH=1.2	17.0%	12.1%	.7%	16.9%	.64.2%	*****	21.1%	31.0%	100.0%
S/DEPTH=1.1	12.4%	9.0%	.805	.646	53.2%	.009	.241	.439	.515
S/DEPTH=1.0	8.3%	5.7%	1.9%	15.1%	46.0%	*****	28.5%	30.5%	45.4%
S/DEPTH=.9	.859	.827	3.5%	.610	40.9%	.035	.201	.405	.482
S/DEPTH=.8	4.7%	2.6%	6.74	.370	37.2%	.053	.168	.38.7%	.455
S/DEPTH=.7	1.6%	.1%	5.2%	14.2%	34.4%	.067	.143	.23.1%	.31.1%
S/DEPTH=.6	.692	.672	6.16	.531	30.7%	*****	53.2%	10.6%	.432
S/DEPTH=.5	.10%	2.44%	6.7%	14.3%	28.0%	.076	.123	.353	.415
S/DEPTH=.4	.627	.611	5.65	.494	26.0%	.083	.109	.336	.403
S/DEPTH=.3	3.2%	4.4%	8.0%	14.9%	22.7%	.099	.099	.323	.393
S/DEPTH=.2	.573	.560	5.22	.462	20.9%	.089	.093	.316	.356
S/DEPTH=.1	.4.9%	.518	9.1%	14.7%	18.0%	.090	.091	.314	.393
S/DEPTH=.0	.529	.518	4.85	.434	16.8%	.101.2%	.033%	.9%	.33%
	.62%	.71%	9.9%	14.8%	14.9%				
	.494	.485	.456	.411	13.6%				
	.712%	8.0%	10.5%	14.9%	12.3%				
	.468	.459	.434	.393	11.1%				
	.7.9%	8.7%	10.9%	14.4%	10.1%				
	.450	.442	.418	.380	9.0%				
	.84%	.91%	11.2%	14.2%	8.6%				
	.439	.431	.409	.372	7.7%				
	.8.7%	9.4%	11.3%	14.9%	6.6%				
	.435	.428	.406	.370	5.6%				
	.8.6%	9.4%	11.4%	14.9%	4.6%				

CASE 7=D

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.371	.587	.629	.443	.137	.066	.135	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION,... DEFINED IN EQ.(36)									
SURFACE	.0005	.001	.011	.028	.064	.080	.044	.069	.126
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION,... DEFINED IN EQ.(37)									
SURFACE	.036	.004	.009	.010	.004	.002	.001	.004	.006

CASE 7-D

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.035 (14.1%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	320 (-56.0%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.365 (-65.6%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.686 (-61.1%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.548 (-49.9%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.799 (7.0%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.727 (-41.0%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.694 (-31.5%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.146 (37.7%)

CASE 7=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.300647	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.067613	STREAM FUNCTION	.006130
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.629274	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.125891	STREAM FUNCTION	.035687
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.743105	STREAM FUNCTION	.916645
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.308190	STREAM FUNCTION	.242414

CASE 8=a

2TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .04195 DPT/LO = .499998
H/DPT = .08390
L/LO = 1.013086 PSI/(G*H*T) = -.005178

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.714260=02 X(2)/(H*T*G) = -.622897=06

CASE 8=A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHTS	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 3.6%	75.0 .097 32.8%	100.0 .116 25.0%	130.0 -1.373 2.6%	180.0 -1.466 7.3%
SURFACE	3.575	3.511	3.322	3.021	2.156	.812	-.533	-2.153	-2.737
S/DEPTH=.10	.5%	.6%	.9%	1.2%	2.2%	3.9%	5.3%	1.5%	-.9%
S/DEPTH=.09	3.111	3.063	2.921	2.690	1.990	.792	-.3%	-1.5%	
S/DEPTH=.08	2.283	2.248	2.144	1.975	1.462	.584	-.4%	-1.743	-2.270
S/DEPTH=.07	1.678	1.653	1.577	1.452	1.076	.430	-.2%	-1.2%	-1.4%
S/DEPTH=.06	1.236	1.219	1.163	.95%	.7%	-.13%	-.5%	-.7%	-1.671
S/DEPTH=.05	.917	.903	.862	.794	.589	.318	-.7%	-.1%	-1.234
S/DEPTH=.04	.686	.676	.645	.594	.441	.236	-.1%	-.702	-.915
S/DEPTH=.03	.522	.514	.490	.452	.335	.177	-.120	-.4%	-.3%
S/DEPTH=.02	.408	.402	.383	.353	.262	.135	-.091	-.399	-.521
S/DEPTH=.01	.334	.329	.314	.289	.214	.086	-.071	-.312	-.408
S/DEPTH=.00	.278	.274	.262	.241	.179	.072	-.048	-.213	-.278
	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%

CASE 8=a

TABLE I-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 e3.6%	75.0 32.8%	100.0 29.0%	130.0 26.0%	180.0 23.0%
SURFACE	.000 *****	.620 =.2%	1.211 =.4%	1.747 =.8%	2.578 =1.6%	3.064 =2.4%	2.945 =2.6%	1.789 =1.8%	.000 *****
S/DEPTH=1.0	.000 *****	.540 =.9%	1.063 =1.0%	1.553 =1.0%	2.576 =1.2%	2.987 =1.5%			
S/DEPTH=.9	.000 *****	.395 =.6%	.777 =.7%	1.135 =.7%	1.737 =.8%	2.186 =1.1%	2.223 =1.2%	1.446 =1.7%	.000 *****
S/DEPTH=.8	.000 *****	.268 =.3%	.567 =.3%	.829 =.4%	1.269 =.5%	1.597 =.6%	1.625 =.6%	1.058 =1.1%	.000 *****
S/DEPTH=.7	.000 *****	.210 =.2%	.413 =.3%	.604 =.4%	.924 =.7%	1.164 =.8%	1.185 =.8%	.772 =.5%	.000 *****
S/DEPTH=.6	.000 *****	.152 =.1%	.299 =.4%	.437 =.4%	.670 =.7%	.844 =.8%	.859 =.8%	.560 =.0%	.000 *****
S/DEPTH=.5	.000 *****	.109 =.1%	.215 =.7%	.314 =.7%	.480 =.7%	.605 =.8%	.617 =.5%	.402 =.4%	.000 *****
S/DEPTH=.4	.000 *****	.077 =.1%	.151 =.7%	.221 =.7%	.338 =.7%	.426 =.7%	.434 =.5%	.283 =.4%	.000 *****
S/DEPTH=.3	.000 *****	.052 =.1%	.102 =.7%	.149 =.7%	.228 =.7%	.298 =.7%	.293 =.9%	.191 =.8%	.000 *****
S/DEPTH=.2	.000 *****	.032 =.1%	.063 =.7%	.092 =.7%	.141 =.7%	.178 =.7%	1.181 =1.4%	1.118 =1.4%	.000 *****
S/DEPTH=.1	.000 *****	.015 =.1%	.030 =.7%	.044 =.7%	.067 =.7%	.085 =.7%	.086 =.7%	.056 =.7%	.000 *****
S/DEPTH=.0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

CASE 8aA

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.524	.494	.447	.310	.097	.116	.373	.466
	6.3%	6.0%	4.9%	3.0%	3.6%	-32.6%	25.0%	2.6%	7.3%
SURFACE	.000	3.935	7.684	11.080	16.319	19.352	18.554	11.244	.000
S/DEPTH=1.0	*****	.6%	.4%	.0%	1.1%	2.2%	2.7%	2.4%	*****
S/DEPTH=.9	*****	3.427	6.746	9.852	15.046	18.667	14.058	9.122	.000
S/DEPTH=.8	*****	2.507	4.936	7.211	11.024	13.848	11.4%	2.1%	*****
S/DEPTH=.7	*****	1.839	3.620	5.290	8.093	10.180	10.351	6.750	.000
S/DEPTH=.6	*****	1.353	2.664	3.893	5.960	7.505	7.841	4.977	.000
S/DEPTH=.5	*****	1.000	1.970	2.880	4.412	5.562	5.668	3.698	.000
S/DEPTH=.4	*****	.747	1.471	2.151	3.296	4.159	4.243	2.772	.000
S/DEPTH=.3	*****	.567	1.116	1.632	2.503	3.161	3.228	2.112	.000
S/DEPTH=.2	*****	.442	.871	1.274	1.955	2.471	2.526	1.655	.000
S/DEPTH=.1	*****	.361	.711	1.040	1.597	2.22%	2.1%	2.0%	.000
S/DEPTH=.0	*****	.315	.621	.909	1.395	1.766	1.809	1.188	.000
	*****	.300	.592	.866	1.330	1.685	1.726	1.133	.000
	*****		*****	*****	3.2%	3.2%	3.2%	3.2%	*****

CASE 8=A

TABLE 14-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD, ...DEFINED IN EQUATION (24)
 THETA = 0
 ETA/HEIGHT = 6.33

SURFACE	19.100	18.769	17.621	15.789	10.535	2.382	5.741	15.485	18.980
S/DEPTH=1.0	.3%	.2%	.1%	.5%	.6%	.4%	.18%	.19%	.16%
S/DEPTH=.9	.5%	.5%	.6%	.8%	.9%	.4%	.2%	.2%	.2%
S/DEPTH=.8	.7%	.7%	.8%	.9%	.9%	.4%	.2%	.2%	.2%
S/DEPTH=.7	.9%	.9%	.9%	.9%	.9%	.4%	.2%	.2%	.2%
S/DEPTH=.6	1.1%	1.1%	1.1%	1.1%	1.1%	.4%	.2%	.2%	.2%
S/DEPTH=.5	1.3%	1.3%	1.3%	1.3%	1.3%	.4%	.2%	.2%	.2%
S/DEPTH=.4	1.5%	1.5%	1.5%	1.5%	1.5%	.4%	.2%	.2%	.2%
S/DEPTH=.3	1.7%	1.7%	1.7%	1.7%	1.7%	.4%	.2%	.2%	.2%
S/DEPTH=.2	1.9%	1.9%	1.9%	1.9%	1.9%	.4%	.2%	.2%	.2%
S/DEPTH=.1	2.1%	2.1%	2.1%	2.1%	2.1%	.4%	.2%	.2%	.2%
S/DEPTH=.0	2.3%	2.3%	2.3%	2.3%	2.3%	.4%	.2%	.2%	.2%

CASE 8-A

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.524	.494	.447	.310	.097	.116	.373	.466
	6.5%	6.0%	4.9%	3.0%	3.6%	32.6%	29.0%	2.6%	7.3%
SURFACE	2.089	2.015	1.805	1.494	.764	.109	.046	.766	1.241
S/DEPTH#1.0	.1%	.0%	.5%	.1%	2.6%	5.4%	*****	1.0%	.0%
S/DEPTH# .9	1.589	1.540	1.402	1.189	.652	.104	*****	.507	.861
S/DEPTH# .8	.867	.841	.765	.650	.357	.057	.027	.08%	1.1%
S/DEPTH# .7	.3%	.2%	.4%	.5%	.8%	.032	.015	.260	.476
S/DEPTH# .6	.478	.464	.422	.358	.197	*****	*****	.5%	.1%
S/DEPTH# .5	.7%	.7%	.6%	.6%	.3%	*****	*****	.157	.286
S/DEPTH# .4	.267	.259	.236	.200	.110	.018	.008	1.5%	1.3%
S/DEPTH# .3	1.7%	1.7%	1.7%	1.6%	1.5%	*****	.005	.089	.152
S/DEPTH# .2	.152	.148	.135	.114	.063	.010	*****	*****	2.5%
S/DEPTH# .1	2.7%	2.7%	2.7%	2.7%	*****	*****	.003	.052	.089
S/DEPTH# .0	.089	.086	.078	.067	.037	.006	*****	*****	*****
S/DEPTH# .4	.053	.051	.046	.039	.022	.004	.002	.031	.053
S/DEPTH# .3	.031	.030	.028	.023	.013	.002	.001	.018	.031
S/DEPTH# .2	.018	.017	.016	.013	.007	.001	.001	.010	.018
S/DEPTH# .1	.008	.008	.007	.006	.003	.001	.000	.005	.008
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8-A

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .524 6.0%	20.0 .494 4.9%	30.0 .447 3.0%	50.0 .310 3.6%	75.0 .097 32.6%	100.0 .116 25.0%	130.0 .373 2.6%	180.0 .466 7.1%
SURFACE	.000	1.252	2.446	3.530	5.212	6.203	5.969	3.635	.000
S/DEPTH=1.0	*****	1.2%	1.0%	.7%	.1%	.9%	-1.1%	.3%	*****
S/DEPTH=.9	*****	1.091	2.147	3.138	4.803	6.046	.2%	2.938	.000
S/DEPTH=.8	*****	.5%	.5%	.4%	.3%	4.424	4.507	2.152	.000
S/DEPTH=.7	*****	.796	1.568	2.292	3.510	.4%	.7%	.4%	.000
S/DEPTH=.6	*****	.8%	.8%	.7%	.6%	3.232	3.296	1.571	.000
S/DEPTH=.5	*****	.581	1.144	1.672	2.562	.8%	2.403	1.0%	.000
S/DEPTH=.4	*****	1.1%	1.1%	1.1%	1.0%	2.354	1.7%	1.141	.000
S/DEPTH=.3	*****	1.422	.832	1.217	1.865	1.3%	1.4%	1.5%	.000
S/DEPTH=.2	*****	1.5%	.602	.881	1.351	1.706	1.6%	.820	.000
S/DEPTH=.1	*****	.306	1.8%	1.8%	1.7%	1.224	1.251	1.9%	.000
S/DEPTH=.0	*****	.219	.432	.631	.969	2.1%	2.0%	.578	.000
S/DEPTH=.4	*****	.154	.303	.444	.681	.861	.881	.2%	.000
S/DEPTH=.3	*****	.104	.205	.299	.460	.582	.595	.2%	.000
S/DEPTH=.2	*****	.064	.126	.185	.284	.359	.368	.2%	.000
S/DEPTH=.1	*****	.031	.060	.088	.135	.171	.175	.1%	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000

CASE B=A

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534 6.5%	.524 6.0%	.494 4.9%	.447 3.0%	.310 3.6%	.097 25.0%	.097 32.8%	.097 25.0%	.373 2.6%	.466 7.3%
SURFACE	1.833	1.766	1.578	1.300	.655	.092	.092	.038	.612	.981
S/DEPTH=1.0	.2%	.0%	.5%	.13%	.33%	.63%	.63%	.13%	.13%	.1%
S/DEPTH= .9	1.521	1.281	1.165	.988	.542	.086	.086	.019	.369	.627
S/DEPTH= .8	.632	.613	.558	.473	.260	.042	.042	.009	.12%	.15%
S/DEPTH= .7	.299	.290	.264	.224	.123	.020	.020	.004	.175	.297
S/DEPTH= .6	.140	.136	.124	.105	.056	.009	.009	.002	.082	.139
S/DEPTH= .5	.029	.028	.026	.022	.012	.002	.002	.001	.038	.064
S/DEPTH= .4	.013	.012	.011	.010	.005	.001	.001	.000	.017	.029
S/DEPTH= .3	.005	.005	.005	.004	.002	.000	.000	.000	.008	.013
S/DEPTH= .2	.002	.002	.002	.001	.001	.000	.000	.000	.003	.005
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=A

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	.534	.524	.494	.447	.310	.097	.116	.373	.466
	6.3%	6.0%	4.9%	3.0%	3.6%	32.8%	25.0%	2.16%	7.13%
SURFACE	.000	.936	1.823	2.618	3.807	4.424	4.155	2.455	.000
S/DEPTH=1.0	*****	1.3%	1.0%	.5%	.6%	1.7%	1.9%	.8%	*****
S/DEPTH= .9	*****	.771	1.518	2.218	3.393	4.267			
S/DEPTH= .8	*****	.2%	.2%	.1%	.1%	.5%		1.803	.000
S/DEPTH= .7	*****	.491	.966	1.412	2.161	2.721	2.770	.7%	*****
S/DEPTH= .6	*****	.4%	.4%	.4%	.2%	.0%	.3%	1.133	.000
S/DEPTH= .5	*****	.307	.604	.883	1.353	1.705	1.737	.1%	*****
S/DEPTH= .4	*****	.7%	.7%	.7%	.6%	.0%	.2%		*****
S/DEPTH= .3	*****	.188	.370	.541	.828	1.045	1.066	.696	.000
S/DEPTH= .2	*****	*****	1.1%	1.0%	1.0%	.8%	.7%	.5%	*****
S/DEPTH= .1	*****	.112	.220	.321	.493	.622	.635	.415	.000
S/DEPTH= .0	*****	*****	1.4%	1.4%	1.4%	1.3%	1.2%	1.0%	*****
	*****	.064	.126	.184	.282	.356	.363	.238	.000
	*****	*****	*****	*****	1.8%	1.7%	1.6%	1.5%	*****
	*****	.034	.067	.099	.151	.191	.196	.128	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.017	.033	.048	.074	.093	.095	.062	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.007	.013	.019	.029	.037	.038	.025	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.002	.003	.004	.007	.009	.009	.006	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 80A

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

[illegible]

CASE 8-A

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.014	.019	.020	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.011	.010	.030	.029	.010	.037
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8-a

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.013 (1.6%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (.9%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (.1.9%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (.1.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.521 (.9%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.522 (.5%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.999 (.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.537 (1.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.017 (67.1%)

CASE 8=A

TABLE XI(CONT)OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

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* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .012912          STREAM FUNCTION          .000000

(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .023215          STREAM FUNCTION          .000039

(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (46)
      LINEAR          .020919          STREAM FUNCTION          .000000

(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR
      DEFINED IN EQUATION (47)
      LINEAR          .036830          STREAM FUNCTION          .000061

(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (48)
      LINEAR          .151341          STREAM FUNCTION          .148196

(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER
      DEFINED IN EQUATION (49)
      LINEAR          .128825          STREAM FUNCTION          .128062

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CASE 8=B

5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318)^{.5} * T^{**2}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .083974 DPT/LO = .499998

H/DPT = .167949

L/LO = 1.059180 PSI/(G*H*T) = -.009830

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.810478E-02 X(2)/(H*T*G) = -.433063E-05

X(3)/(H*T*G) = -.796799E-08 X(4)/(H*T*G) = -.463841E-10

X(5)/(H*T*G) = -.164178E-12

TABLE 7-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

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CASE 8=B

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	10.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.570	.514	.450	.285	.061	.336	.450
	12.2%	8.5%	3.9%	12.6%	36.9%	7.6%	10.2%
SURFACE	.000	1.366	1.922	2.666	2.943	1.532	.000
S/DEPTH=1.0	.5%	.8%	.27%	.69%	.104%	.74%	.000
S/DEPTH= .9	.51	1.043	1.519	2.302	2.853	1.382	.000
S/DEPTH= .8	.389	.765	1.115	1.696	2.111	1.015	.000
S/DEPTH= .7	.286	.562	.820	1.249	1.560	.54%	.000
S/DEPTH= .6	.209	.412	.602	.918	1.150	.752	.000
S/DEPTH= .5	.153	.301	.440	.672	.843	.554	.000
S/DEPTH= .4	.111	.218	.318	.487	.621	.403	.000
S/DEPTH= .3	.078	.135	.226	.345	.434	.287	.000
S/DEPTH= .2	.053	.109	.154	.235	.296	.21%	.000
S/DEPTH= .1	.033	.065	.095	.146	.184	.122	.000
S/DEPTH= .0	.016	.031	.046	.070	.088	.058	.000
	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000

CASE 8=B

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT=	10.0 11.3%	20.0 8.5%	30.0 3.9%	50.0 12.6%	75.0 28.5	100.0 61	130.0 36.9%	180.0 130.0	230.0 36.9%	280.0 7.6%	330.0 16.2%
SURFACE	4.720	9.019	12.601	17.196	18.635	16.671	9.450	18.635	16.671	9.450	18.635
S/DEPTH=1.0	5.7%	4.0%	1.4%	4.3%	9.8%	11.7%	10.2%	9.8%	11.7%	10.2%	9.8%
S/DEPTH=.9	3.481	6.623	9.897	14.629	18.074	21.7%	25.7%	18.074	21.7%	25.7%	18.074
S/DEPTH=.8	1.5%	1.0%	.2%	2.1%	5.7%	13.363	8.452	5.7%	13.363	8.452	5.7%
S/DEPTH=.7	2.534	4.974	7.534	10.916	13.836	16.7%	10.3%	13.836	16.7%	10.3%	13.836
S/DEPTH=.6	-1.1%	.8%	.2%	1.4%	3.9%	10.002	6.393	3.9%	10.002	6.393	3.9%
S/DEPTH=.5	1.858	3.652	5.320	8.067	10.82%	13.836	10.3%	8.067	10.82%	13.836	10.3%
S/DEPTH=.4	1.4%	1.2%	.8%	1.4%	2.2%	7.525	4.856	2.2%	7.525	4.856	2.2%
S/DEPTH=.3	1.372	2.699	3.936	5.990	7.469	1.6%	3.7%	5.990	7.469	3.7%	5.990
S/DEPTH=.2	2.1%	2.0%	1.7%	1.9%	1.8%	5.677	3.671	1.9%	5.677	3.671	1.9%
S/DEPTH=.1	1.022	2.011	2.935	4.879	5.609	5.677	3.671	4.879	5.609	3.671	4.879
S/DEPTH=.0	3.2%	3.1%	2.9%	2.4%	1.5%	.5%	.9%	2.4%	3.1%	.9%	.5%
S/DEPTH=.9	.769	1.515	2.213	3.384	4.254	4.323	2.810	3.384	4.254	2.810	4.323
S/DEPTH=.8	4.5%	4.1%	4.0%	4.0%	3.4%	2.7%	1.8%	4.0%	4.1%	1.8%	4.0%
S/DEPTH=.7	.590	1.162	1.698	2.602	3.281	3.346	2.185	3.281	3.346	2.185	3.281
S/DEPTH=.6	6.1%	6.1%	6.0%	5.8%	5.0%	4.9%	4.3%	5.8%	6.1%	4.3%	5.0%
S/DEPTH=.5	.465	.917	1.341	2.058	2.803	2.863	1.746	2.058	2.803	1.746	2.863
S/DEPTH=.4	7.8%	7.8%	7.6%	7.6%	7.3%	7.0%	6.6%	7.6%	7.8%	6.6%	7.3%
S/DEPTH=.3	.384	.757	1.108	1.702	2.158	2.213	1.456	1.702	2.158	1.456	2.213
S/DEPTH=.2	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
S/DEPTH=.1	.338	.666	.975	1.501	1.906	1.958	1.292	1.501	1.906	1.292	1.958
S/DEPTH=.0	.323	.637	1.033	1.636	2.124	2.185	1.456	1.636	2.124	1.456	2.185
S/DEPTH=.0	.323	.637	1.033	1.636	2.124	2.185	1.456	1.636	2.124	1.456	2.185

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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CASE 8=B

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	12.82	.570	.555	.514	.450	.285	.061	.138	.430
		11.33	8.55	5.94	3.94	-12.68	110.94	36.94	-16.24
SURFACE	2.708	2.584	2.245	1.774	.807	.096	.045	.618	.966
S/DEPTH=1.0	.0%	.68%	3.22%	6.8%	15.1%	*****	*****	2.7%	.6%
S/DEPTH= .9	4.6%	1.489	1.350	1.139	.612	*****	*****	.492	.826
S/DEPTH= .8	8.59	4.77%	5.22%	5.9%	8.6%	*****	*****	3.8%	5.4%
S/DEPTH= .7	1.2%	.833	.756	.639	.346	.053	.028	.280	.472
S/DEPTH= .6	1.3%	1.3%	1.6%	2.2%	4.0%	*****	*****	.5%	.6%
S/DEPTH= .5	4.86	1.471	.428	1.7%	.197	.031	.016	.162	.274
S/DEPTH= .4	2.3%	2.2%	2.0%	1.7%	.8%	*****	.009	4.6%	3.9%
S/DEPTH= .3	5.9%	5.271	5.77%	5.52%	.067	.011	.005	.095	.161
S/DEPTH= .2	9.4%	9.4%	9.3%	9.3%	*****	*****	*****	8.0%	.097
S/DEPTH= .1	.098	.095	.086	.073	.040	.006	.003	.057	*****
S/DEPTH= .0	.059	.058	.052	.044	*****	.004	.002	.059	.059
S/DEPTH= .3	.036	.035	.032	.027	.015	.002	.001	.021	.036
S/DEPTH= .2	.021	.020	.018	.015	.008	.001	.001	.012	.020
S/DEPTH= .1	.009	.009	.008	.007	.004	.001	.000	.006	.009
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=B

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.570	.555	.514	.450	.285	.061	.138	.356	.430
	12.2%	11.3%	8.5%	3.9%	12.6%	110.9%	36.9%	7.6%	16.2%
SURFACE	.000	1.493	2.869	4.038	5.611	6.211	5.652	3.263	.000
S/DEPTH=.10	.000	5.9%	4.6%	2.8%	1.1%	4.2%	4.4%	1.2%	.000
	.000	1.114	2.190	3.192	4.845	6.022			
S/DEPTH=.09	.000	2.9%	2.7%	2.4%	1.3%	3%			.000
	.000	.816	1.605	2.302	3.568	4.458	4.502	2.904	.000
S/DEPTH=.08	.000	.598	3.4%	3.2%	2.5%	1.5%	.0%	1.7%	.000
	.000	4.5%	1.178	1.720	2.627	3.295	3.541	2.166	.000
S/DEPTH=.07	.000	.338	4.4%	4.2%	3.7%	2.9%	1.9%	1%	.000
	.000	5.5%	.863	1.261	1.929	2.428	2.470	1.608	.000
S/DEPTH=.06	.000	.319	5.5%	5.3%	5.0%	4.4%	3.7%	2.9%	.000
	.000	6.6%	.629	.920	1.410	1.779	1.615	1.166	.000
S/DEPTH=.05	.000	.231	6.6%	6.5%	6.3%	5.8%	5.4%	4%	.000
	.000	.444	7.7%	.664	1.020	1.289	1.318	.864	.000
S/DEPTH=.04	.000	.163	7.7%	7.7%	7.5%	7.2%	6.8%	6.4%	.000
	.000	.331	8.8%	.470	.723	.915	.938	.616	.000
S/DEPTH=.03	.000	.111	.218	8.7%	8.6%	8.4%	8.1%	7.8%	.000
	.000	.444	.444	.320	.491	.623	.639	.421	.000
S/DEPTH=.02	.000	.069	.135	9.6%	9.5%	9.4%	9.2%	8.9%	.000
	.000	.333	.333	.198	.305	.387	.397	.262	.000
S/DEPTH=.01	.000	.033	.065	.095	.146	.185	10.0%	.000	.000
	.000	.333	.333	.333	.333	.333	.333	.333	.000
S/DEPTH=.00	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.333	.333	.333	.333	.333	.333	.333	.000

CASE 8-B

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT#	0 .570 12.2%	10.0 .555 11.3%	20.0 .514 8.5%	30.0 .450 3.9%	50.0 .285 12.6%	75.0 .061 110.9%	100.0 36.9%	130.0 7.6%	180.0 356 16.2%
SURFACE	2.499	2.378	2.048	1.599	.703	.080	.036	.070	.721
S/DEPTH#1.0	.3%	.7%	.5%	.7.6%	.17.5%	*****	*****	.3.8%	.5%
S/DEPTH# .9	.5.9%	1.227	1.112	.938	.503	.074	*****	.354	.593
S/DEPTH# .8	.619	.600	.544	.460	.249	.038	*****	.5.2%	7.3%
S/DEPTH# .7	.2.8%	.2.91	.264	.224	.121	.019	*****	.1.5%	.2.7%
S/DEPTH# .6	.300	.5%	.2%	.22%	.059	.009	*****	.083	.1.7%
S/DEPTH# .5	.144	3.9%	3.8%	.108	.028	.004	*****	.040	.067
S/DEPTH# .4	4.0%	.066	.060	.051	*****	*****	*****	*****	*****
S/DEPTH# .3	*****	*****	*****	.024	.013	.002	*****	.019	.031
S/DEPTH# .2	.032	.031	.028	*****	*****	*****	*****	*****	*****
S/DEPTH# .1	.014	.014	.013	.011	.006	.001	*****	.008	.014
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.006	.006	.005	.005	.002	.000	*****	.004	.006
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.002	.002	.002	.002	.001	.000	*****	.001	.002
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	*****	.000	.000
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	.000	.000
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	*****	.000	.000
S/DEPTH# .0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	12.2%	11.3%	8.5%	5.9%	3.9%	2.85	1.38	356	430
						110.9%	36.9%	7.6%	16.2%
SURFACE									
S/DEPTH=1.0	.000 *****	1.181 6.3%	2.248 4.7%	3.120 2.2%	4.177 3.1%	4.389 7.5%	3.806 7.7%	2.080 3.1%	.000 *****
S/DEPTH=.9	.000 *****	2.083 2.0%	1.539 1.7%	2.240 1.3%	3.392 .0%	4.199 2.10%	.000 *****	1.749 4.1%	.000 *****
S/DEPTH=.8	.000 *****	2.534 3.1%	2.333 3.1%	2.001 2.9%	2.176 1.1%	2.709 1.4%	2.726 2.0%	1.121 1.5%	.000 *****
S/DEPTH=.7	.000 *****	3.193 4.2%	3.180 4.2%	2.555 4.0%	2.333 3.6%	1.717 2.8%	1.736 2.0%	.701 .9%	.000 *****
S/DEPTH=.6	.000 *****	4.116 5.4%	5.228 5.4%	5.333 5.3%	5.010 5.0%	4.641 4.4%	3.825 3.8%	3.08 3.0%	.000 *****
S/DEPTH=.5	.000 *****	5.067 6.7%	6.131 6.7%	6.192 6.0%	6.294 6.4%	6.371 6.0%	5.379 5.8%	5.248 5.0%	.000 *****
S/DEPTH=.4	.000 *****	6.036 8.0%	7.071 8.0%	7.104 7.9%	7.160 7.8%	7.202 7.6%	6.207 6.0%	5.136 5.0%	.000 *****
S/DEPTH=.3	.000 *****	7.018 9.1%	8.035 9.1%	8.051 8.9%	8.078 8.8%	8.099 8.6%	7.102 6.5%	6.067 5.5%	.000 *****
S/DEPTH=.2	.000 *****	8.007 10.2%	9.014 10.2%	9.020 10.0%	9.031 9.8%	9.040 9.6%	8.041 7.5%	6.927 6.5%	.000 *****
S/DEPTH=.1	.000 *****	9.002 11.3%	10.003 11.3%	10.005 10.9%	10.007 10.7%	10.009 10.5%	9.010 8.5%	7.906 8.0%	.000 *****
S/DEPTH=.0	.000 *****	10.000 12.2%	11.000 12.2%	11.000 11.9%	11.000 11.6%	11.000 11.3%	10.000 10.0%	8.900 9.5%	.000 *****

CASE 8-B

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THEA	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	0.570	0.555	0.514	0.450	0.285	0.061	0.061	0.138	0.356	0.430
	12.02	11.33	8.55	3.9	12.66	110.9	110.9	36.9	7.66	16.26
SURFACE	1.139	1.110	1.027	.901	.571	.123	.123	.275	.712	.861
S/DEPTH=1.0	4.7%	4.3%	3.1%	1.5%	2.4%	9.7%	9.7%	.8%	.9%	2.6%
S/DEPTH=.9	.893	.877	.828	.750	.515	.123	.123	.201	.625	.789
S/DEPTH=.8	1.9%	1.6%	1.5%	1.0%	.8%	10.1%	11.8	6.1%	.5%	.35%
S/DEPTH=.7	.685	.673	.638	.580	.408	8.1%	8.1%	6.1%	.5%	.35%
S/DEPTH=.6	2.3%	2.3%	2.0%	1.6%	.0%	6.9%	6.9%	10.3%	3.5%	2.6%
S/DEPTH=.5	.522	.513	.487	.445	.318	10.3	10.3	10.3%	3.5%	2.6%
S/DEPTH=.4	3.0%	3.0%	2.4%	2.4%	.9%	.085	.085	.093	.334	.428
S/DEPTH=.3	.396	.390	.371	.340	.246	.069	.069	.065	.248	.319
S/DEPTH=.2	3.9%	3.6%	3.6%	3.3%	1.8%	6.2%	6.2%	14.9%	6.5%	5.5%
S/DEPTH=.1	4.8%	4.7%	4.5%	4.2%	.189	6.2%	6.2%	20.5%	9.5%	8.5%
S/DEPTH=0	.231	.227	.217	.199	.146	.055	.055	.047	.186	.241
S/DEPTH=.4	5.7%	5.6%	5.4%	5.0%	3.2%	.045	.045	.034	.142	.185
S/DEPTH=.3	.180	.177	.169	.155	.115	.036	.036	.026	.112	.146
S/DEPTH=.2	6.5%	6.4%	6.1%	5.7%	3.6%	.031	.031	.021	.093	.121
S/DEPTH=.1	.143	.141	.135	.124	.092	.028	.028	.018	.082	.107
S/DEPTH=0	7.1%	7.0%	6.7%	6.2%	3.6%	.027	.027	.017	.078	.102
S/DEPTH=.4	.119	.118	.112	.103	.077	.027	.027	.017	.078	.102
S/DEPTH=.3	7.6%	7.5%	7.2%	6.5%	3.6%	.027	.027	.017	.078	.102
S/DEPTH=.2	8.0%	7.8%	7.5%	6.8%	3.7%	.027	.027	.017	.078	.102
S/DEPTH=.1	.106	.104	.099	.092	.066	.027	.027	.017	.078	.102
S/DEPTH=0	.101	.100	.095	.088	.066	.027	.027	.017	.078	.102
S/DEPTH=.4	8.1%	7.9%	7.5%	6.8%	3.6%	.027	.027	.017	.078	.102

CASE 8=B

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.044	.080	.101	.098	.040	.022	.051	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.039	.028	.011	.029	.062	.052	.030	.081
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8-B

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.059 (5.8%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (-4.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.498 (-8.1%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (-6.1%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.542 (-4.4%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.554 (1.6%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (-1.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.572 (3.7%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.030 (149.1%)

CASE 8-8

TABLE XI(CONT)=OVERALL WAVE PARAMETERS,.. DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

■ (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.058970	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.046639	STREAM FUNCTION	.000014
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.107014	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.080862	STREAM FUNCTION	.000049
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.345298	STREAM FUNCTION	.318498
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.243224	STREAM FUNCTION	.236550

CASE 8=C

7TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .125988 DPT/LO = .499998
 H/DPT = .251977
 L/LO = 1.125195 PSI/(G*H*T) = -.013381

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.931214e-02 X(2)/(H*T*G) = -.168029e-04
 X(3)/(H*T*G) = -.938674e-07 X(4)/(H*T*G) = -.939917e-09
 X(5)/(H*T*G) = -.900754e-11 X(6)/(H*T*G) = -.823671e-13
 X(7)/(H*T*G) = -.194169e-14

CASE 8=C

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .61 18.2	10.0 .586 16.0	20.0 .521 9.8	30.0 .434 .2	50.0 .243 -32.4	75.0 .025 *****	100.0 42.0	130.0 -16.3	180.0 -389 -28.7
SURFACE	4.591	4.397	3.903	3.269	1.959	.551	-.528	-1.608	-.958
S/DEPTH=1.1	1.9	-4.2	-10.0	-17.6	-33.5	-63.9	3.3	-10.9	-8.4
S/DEPTH=1.0	11.3	-12.0	-14.0	-17.3	-21.3	-24.7	-.431	-1.535	-1.947
S/DEPTH=.9	2.130	2.082	1.980	1.801	1.279	.49.7	7.2	-14.9	-.0
S/DEPTH=.8	8.1	-8.4	-10.3	-10.7	-15.7	-34.9	-.314	-1.171	-.494
S/DEPTH=.7	5.5	-5.7	-6.2	-7.2	-10.7	-23.9	6.7	-10.3	-1.8
S/DEPTH=.6	1.208	1.188	1.129	1.033	.749	.278	-.231	-.895	-1.149
S/DEPTH=.5	.921	.906	.862	.790	.577	-15.2	7.0	-5.6	-1.7
S/DEPTH=.4	4.4	4.4	4.2	3.8	2.6	.173	-.130	-.535	-.691
S/DEPTH=.3	8.1	.445	.424	.390	.287	.138	-.101	-.422	-.547
S/DEPTH=.2	11.6	11.6	11.5	11.3	10.8	.113	-.081	-.345	-.445
S/DEPTH=.1	14.8	14.8	14.7	14.6	14.2	.096	-.068	-.290	-.377
S/DEPTH=.0	17.0	17.0	16.9	16.9	16.8	.087	-.050	-.200	-.338
	17.8	17.8	17.8	17.7	17.7	.084	-.058	-.250	-.326
						*****	*****	17.5	17.2

CASE 8=C

TABLE II=DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT	0 .611 18.2%	10.0 .586 16.0%	20.0 .521 9.6%	30.0 .434 .2%	50.0 .243 -32.4%	75.0 ***** *****	100.0 .025 42.0%	150.0 -150 -16.3%	180.0 -389 -28.7%
SURFACE	.000 *****	.881 8.5%	1.606 2.6%	2.124 4.5%	2.645 -17.4%	2.671 -25.8%	2.297 -25.6%	1.262 -17.8%	.000 *****
S/DEPTH=1.1	.000 *****	.742 -7%	1.441 2.2%	2.059 4.5%					
S/DEPTH=1.0	.000 *****	.529 -3.0%	1.033 3.9%	1.489 5.4%	2.197 9.5%	2.624 15.5%			
S/DEPTH= .9	.000 *****	.384 -3.5%	.752 3.9%	1.090 4.9%	1.626 7.7%	1.971 12.0%	1.935 -16.4%	1.206 -21.8%	.000 *****
S/DEPTH= .8	.000 *****	.282 -2.6%	.553 3.0%	.803 3.7%	1.207 5.6%	1.478 8.7%	1.464 11.9%	.922 -16.0%	.000 *****
S/DEPTH= .7	.000 *****	.207 -1.1%	.407 1.9%	.592 1.9%	.895 3.3%	1.105 5.5%	1.102 -7.9%	.699 -11.0%	.000 *****
S/DEPTH= .6	.000 *****	.152 -.6%	.299 .4%	.436 .1%	.662 -.9%	.821 -2.5%	.823 -4.7%	.525 -6.7%	.000 *****
S/DEPTH= .5	.000 *****	.111 *****	.218 2.4%	.318 2.1%	.484 1.4%	.603 .2%	.606 -1.2%	.389 -2.9%	.000 *****
S/DEPTH= .4	.000 *****	.079 *****	.156 4.3%	.228 4.1%	.347 3.5%	.433 2.6%	.437 1.5%	.281 .2%	.000 *****
S/DEPTH= .3	.000 *****	.054 *****	.107 .1%	.156 5.7%	.238 5.3%	.298 4.6%	.301 3.7%	.194 2.6%	.000 *****
S/DEPTH= .2	.000 *****	.034 *****	.067 .3%	.097 .0%	.149 6.7%	.186 6.0%	.189 5.4%	.122 *****	.000 *****
S/DEPTH= .1	.000 *****	.016 *****	.032 .3%	.047 .0%	.071 .0%	.090 .0%	.091 .0%	.059 *****	.000 *****
S/DEPTH= .0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

CASE 8=C

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.0	.586	.434	.243	.025	.150	.329	.389
	18.2%	16.0%	.2%	-32.4%	*****	42.0%	16.3%	28.7%
SURFACE	.000	6.774	11.910	15.112	17.573	16.809	13.998	7.488
S/DEPTH=1.1	*****	25.2%	17.7%	7.9%	-11.1%	-25.9%	-30.1%	-25.9%
S/DEPTH=1.0	*****	5.552	10.548	14.622				
S/DEPTH=.9	*****	15.4%	12.3%	7.5%				
S/DEPTH=.8	*****	3.787	7.304	10.342				
S/DEPTH=.7	*****	9.5%	7.6%	4.6%				
S/DEPTH=.6	*****	2.669	5.189	7.433				
S/DEPTH=.5	*****	6.2%	5.0%	3.0%				
S/DEPTH=.4	*****	1.924	3.757	5.420				
S/DEPTH=.3	*****	4.9%	4.1%	2.6%				
S/DEPTH=.2	*****	1.410	2.763	4.003				
S/DEPTH=.1	*****	5.0%	4.5%	3.6%				
S/DEPTH=.0	*****	1.050	2.061	2.995				
S/DEPTH=.1	*****	6.1%	5.8%	5.2%				
S/DEPTH=.2	*****	.795	1.562	2.276				
S/DEPTH=.3	*****	*****	7.8%	7.4%				
S/DEPTH=.4	*****	.615	1.209	1.765				
S/DEPTH=.5	*****	*****	10.3%	10.1%				
S/DEPTH=.6	*****	.490	.966	1.411				
S/DEPTH=.7	*****	*****	13.1%	12.9%				
S/DEPTH=.8	*****	.409	.806	1.180				
S/DEPTH=.9	*****	*****	*****	15.6%				
S/DEPTH=1.0	*****	.363	.716	1.049				
S/DEPTH=1.1	*****	*****	*****	17.6%				
S/DEPTH=1.2	*****	.349	.687	1.006				
S/DEPTH=1.3	*****	*****	*****	18.4%				
S/DEPTH=1.4	*****	*****	*****					
S/DEPTH=1.5	*****	*****	*****					
S/DEPTH=1.6	*****	*****	*****					
S/DEPTH=1.7	*****	*****	*****					
S/DEPTH=1.8	*****	*****	*****					
S/DEPTH=1.9	*****	*****	*****					
S/DEPTH=2.0	*****	*****	*****					
S/DEPTH=2.1	*****	*****	*****					
S/DEPTH=2.2	*****	*****	*****					
S/DEPTH=2.3	*****	*****	*****					
S/DEPTH=2.4	*****	*****	*****					
S/DEPTH=2.5	*****	*****	*****					
S/DEPTH=2.6	*****	*****	*****					
S/DEPTH=2.7	*****	*****	*****					
S/DEPTH=2.8	*****	*****	*****					
S/DEPTH=2.9	*****	*****	*****					
S/DEPTH=3.0	*****	*****	*****					
S/DEPTH=3.1	*****	*****	*****					
S/DEPTH=3.2	*****	*****	*****					
S/DEPTH=3.3	*****	*****	*****					
S/DEPTH=3.4	*****	*****	*****					
S/DEPTH=3.5	*****	*****	*****					
S/DEPTH=3.6	*****	*****	*****					
S/DEPTH=3.7	*****	*****	*****					
S/DEPTH=3.8	*****	*****	*****					
S/DEPTH=3.9	*****	*****	*****					
S/DEPTH=4.0	*****	*****	*****					
S/DEPTH=4.1	*****	*****	*****					
S/DEPTH=4.2	*****	*****	*****					
S/DEPTH=4.3	*****	*****	*****					
S/DEPTH=4.4	*****	*****	*****					
S/DEPTH=4.5	*****	*****	*****					
S/DEPTH=4.6	*****	*****	*****					
S/DEPTH=4.7	*****	*****	*****					
S/DEPTH=4.8	*****	*****	*****					
S/DEPTH=4.9	*****	*****	*****					
S/DEPTH=5.0	*****	*****	*****					
S/DEPTH=5.1	*****	*****	*****					
S/DEPTH=5.2	*****	*****	*****					
S/DEPTH=5.3	*****	*****	*****					
S/DEPTH=5.4	*****	*****	*****					
S/DEPTH=5.5	*****	*****	*****					
S/DEPTH=5.6	*****	*****	*****					
S/DEPTH=5.7	*****	*****	*****					
S/DEPTH=5.8	*****	*****	*****					
S/DEPTH=5.9	*****	*****	*****					
S/DEPTH=6.0	*****	*****	*****					
S/DEPTH=6.1	*****	*****	*****					
S/DEPTH=6.2	*****	*****	*****					
S/DEPTH=6.3	*****	*****	*****					
S/DEPTH=6.4	*****	*****	*****					
S/DEPTH=6.5	*****	*****	*****					
S/DEPTH=6.6	*****	*****	*****					
S/DEPTH=6.7	*****	*****	*****					
S/DEPTH=6.8	*****	*****	*****					
S/DEPTH=6.9	*****	*****	*****					
S/DEPTH=7.0	*****	*****	*****					
S/DEPTH=7.1	*****	*****	*****					
S/DEPTH=7.2	*****	*****	*****					
S/DEPTH=7.3	*****	*****	*****					
S/DEPTH=7.4	*****	*****	*****					
S/DEPTH=7.5	*****	*****	*****					
S/DEPTH=7.6	*****	*****	*****					
S/DEPTH=7.7	*****	*****	*****					
S/DEPTH=7.8	*****	*****	*****					
S/DEPTH=7.9	*****	*****	*****					
S/DEPTH=8.0	*****	*****	*****					
S/DEPTH=8.1	*****	*****	*****					
S/DEPTH=8.2	*****	*****	*****					
S/DEPTH=8.3	*****	*****	*****					
S/DEPTH=8.4	*****	*****	*****					
S/DEPTH=8.5	*****	*****	*****					
S/DEPTH=8.6	*****	*****	*****					
S/DEPTH=8.7	*****	*****	*****					
S/DEPTH=8.8	*****	*****	*****					
S/DEPTH=8.9	*****	*****	*****					
S/DEPTH=9.0	*****	*****	*****					
S/DEPTH=9.1	*****	*****	*****					
S/DEPTH=9.2	*****	*****	*****					
S/DEPTH=9.3	*****	*****	*****					
S/DEPTH=9.4	*****	*****	*****					
S/DEPTH=9.5	*****	*****	*****					
S/DEPTH=9.6	*****	*****	*****					
S/DEPTH=9.7	*****	*****	*****					
S/DEPTH=9.8	*****	*****	*****					
S/DEPTH=9.9	*****	*****	*****					
S/DEPTH=10.0	*****	*****	*****					

CASE R=C

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA = ETA/HEIGHT=	10.0 6.11 18.2%	20.0 5.21 9.8%	30.0 4.34 2%	50.0 2.43 52.4%	75.0 1.025 *****	100.0 150 42.0%	130.0 16.329 16.3%	180.0 389 28.7%
SURFACE	15.982	15.005	12.580	9.572	3.554	2.862	7.787	12.668
S/DEPTH=1.1	24.9%	22.8%	17.4%	11.2%	7.1%	39.0%	28.8%	21.6%
S/DEPTH=1.0	15.289	14.575	12.580	9.664	7.1%	39.0%	28.8%	21.6%
S/DEPTH=0.9	19.5%	18.4%	15.1%	10.1%	6.8%	39.0%	28.8%	21.6%
S/DEPTH=0.8	13.063	12.027	11.376	9.480	4.387	2.690	5.894	11.975
S/DEPTH=0.7	9.1%	8.3%	6.1%	2.4%	1.01%	2.0%	13.2%	26.8%
S/DEPTH=0.6	10.010	10.326	9.501	8.205	4.607	735	3.601	8.631
S/DEPTH=0.5	4.0%	3.4%	1.9%	0.7%	0.8%	1.82	6.7%	18.6%
S/DEPTH=0.4	8.380	8.167	7.623	6.725	4.158	5.8%	6.3%	18.6%
S/DEPTH=0.3	1.8%	1.4%	3%	1.5%	0.81%	5.487	2.480	6.246
S/DEPTH=0.2	6.092	6.558	5.984	5.330	3.487	5.487	12.40%	14.9%
S/DEPTH=0.1	1.8%	1.2%	0.4%	1.0%	0.8%	0.9%	1.637	5.596
S/DEPTH=0.0	4.947	4.852	4.573	4.122	2.795	6.636	3.4%	6.7%
S/DEPTH=0.0	2.1%	1.9%	1.3%	1.3%	1.3%	5.91	1.088	4.069
S/DEPTH=0.0	3.599	3.632	3.434	3.113	2.161	6.7%	2.52%	4.4%
S/DEPTH=0.0	3.3%	3.1%	2.7%	1.9%	0.9%	4.89	2.301	2.902
S/DEPTH=0.0	2.692	2.645	2.506	2.281	1.609	4.89	0.721	0.7%
S/DEPTH=0.0	4.0%	4.5%	4.2%	3.6%	1.4%	3.68	0.466	1.985
S/DEPTH=0.0	1.868	1.836	1.742	1.590	1.13%	3.68	3.5%	2.1%
S/DEPTH=0.0	6.0%	5.9%	5.6%	5.1%	3.3%	2.43	2.79	1.237
S/DEPTH=0.0	1.175	1.156	1.098	1.003	0.720	1.243	5.4%	4.237
S/DEPTH=0.0	7.8%	7.8%	6.8%	6.4%	4.349	1.120	1.31	4.65
S/DEPTH=0.0	5.567	5.530	5.485	5.485	3.349	1.120	1.31	4.65
S/DEPTH=0.0	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S/DEPTH=0.0	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHTS	.611	.586	.521	.434	.243	.025	.150	.329	.389
	18.2%	16.0%	9.8%	.2%	-32.4%	*****	42.0%	-10.5%	-28.7%
SURFACE	3.530	3.268	2.637	1.906	.731	.068	.045	.490	.743
S/DEPTH=1.1	.3%	-3.2%	-12.4%	-24.7%	-50.3%	*****	*****	-6.4%	.1%
S/DEPTH=1.0	16.7%	2.470	2.6202	1.609					
S/DEPTH=.9	11.6%	1.392	1.250	1.037	.530	.066	.031	.448	.735
S/DEPTH=.8	5.5%	12.1%	13.7%	16.1%	25.5%	*****	*****	13.9%	-1.0%
S/DEPTH=.7	1.0%	5.9%	6.9%	8.6%	14.7%	*****	.017	.266	.441
S/DEPTH=.6	7.6%	7.4%	7.0%	6.2%	5.1%	.026	.010	.160	.267
S/DEPTH=.5	.106	.103	.093	.079	.043	.017	.006	.098	1.6%
S/DEPTH=.4	.066	.064	.058	.049	.027	*****	.003	*****	.164
S/DEPTH=.3	.041	.040	.036	.031	.017	.010	.001	.024	*****
S/DEPTH=.2	.024	.023	.021	.018	.010	.007	.001	.014	.103
S/DEPTH=.1	.011	.011	.010	.008	.005	.004	.000	.006	.065
S/DEPTH=.0	.000	.000	.000	.000	.000	.003	.000	.000	.040
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	18.2%	.611	.586	.521	.434	.325	.150	.0329	.0389
		16.0%	9.8%	9.8%	.2%	*****	42.0%	16.3%	28.7%
SURFACE	.000	1.921	3.512	4.664	5.852	5.955	5.158	2.864	.000
S/DEPTH=1.1	*****	16.7%	11.9%	5.8%	5.4%	-12.4%	-11.8%	-4.5%	*****
	.000	1.628	3.161	4.526					
S/DEPTH=1.0	*****	9.0%	7.7%	5.7%					
	.000	1.168	2.281	3.292					
S/DEPTH=.9	*****	7.7%	6.9%	5.6%	4.871	5.852			
	.000	.849	1.663	2.412	2.0%	-3.2%	4.352	2.739	.000
S/DEPTH=.8	*****	7.7%	7.1%	6.3%	3.9%	4.005	-3.5%	-8.1%	.000
	.000	.622	1.221	1.775	2.680	3.306	3.299	2.069	.000
S/DEPTH=.7	*****	8.5%	8.1%	7.6%	5.9%	3.3%	.6%	2.8%	.000
	.000	.457	.898	1.308	1.987	2.471	2.486	1.597	.000
S/DEPTH=.6	*****	9.9%	9.6%	9.2%	8.1%	6.2%	4.2%	1.7%	.000
	.000	.335	.658	.961	1.466	1.835	1.858	1.203	.000
S/DEPTH=.5	*****	11.5%	11.3%	11.0%	10.2%	8.9%	7.5%	5.6%	.000
	.000	.243	.479	.700	1.070	1.347	1.371	.893	.000
S/DEPTH=.4	*****	13.1%	13.1%	12.9%	12.3%	11.3%	10.3%	8.9%	.000
	.000	.173	.341	.499	.765	.967	.988	.647	.000
S/DEPTH=.3	*****	14.6%	14.6%	14.6%	14.2%	13.5%	12.7%	11.6%	.000
	.000	.118	.233	.341	.524	.665	.681	.408	.000
S/DEPTH=.2	*****	16.1%	16.1%	16.1%	15.8%	15.3%	14.6%	13.8%	.000
	.000	.074	.145	.213	.327	.416	.427	.282	.000
S/DEPTH=.1	*****	17.0%	17.0%	17.0%	17.0%	16.6%	16.1%	15.1%	.000
	.000	.035	.070	.102	.157	.200	.206	.136	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEYA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.611	.586	.521	.434	.243	.025	.150	.329	.389
	18.2%	16.0%	9.8%	.2%	.32.4%	*****	42.0%	16.3%	28.7%
SURFACE	3.449	3.170	2.507	1.763	.635	.054	.036	.354	.524
S/DEPTH=1.1	1.8%	-2.2%	12.9%	-27.4%	-58.7%	*****	*****	-8.2%	.1%
S/DEPTH=1.0	-18.7%	-19.6%	-22.4%	-26.9%	.427	.052	.022	.316	.517
S/DEPTH=.9	1.175	1.134	1.017	.842	.29.8%	.029	.011	.18.1%	1.3%
S/DEPTH=.8	-14.2%	-14.8%	-16.5%	-19.5%	.221	.016	.005	.161	.265
S/DEPTH=.7	-8.6%	-9.0%	-10.1%	-12.1%	-19.1%	.008	.001	.081	.134
S/DEPTH=.6	-2.5%	-2.7%	-3.5%	-4.8%	.113	.004	.001	.001	.033
S/DEPTH=.5	.144	.139	.126	.106	.057	.001	.001	.009	.015
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.070	.068	.062	.052	.028	.004	.002	.040	.067
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.034	.033	.030	.025	.014	.002	.001	.019	.033
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.016	.015	.014	.012	.006	.001	.001	.009	.015
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.007	.007	.006	.005	.003	.000	.000	.004	.007
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.003	.002	.002	.002	.001	.000	.000	.001	.002
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.000	.000	.000	.000	.000	.000	.001
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=C

TABLE VII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.611	.586	.521	.434	.243	.025	.150	.329	.389
	18.2%	16.0%	9.8%	.2%	-32.4%	*****	42.0%	-16.3%	-26.7%
SURFACE	.000	1.636	2.920	3.756	4.391	4.114	3.327	1.716	.000
	*****	19.2%	13.0%	5.0%	-10.3%	-20.3%	-19.3%	-8.0%	*****
S/DEPTH=1.1	.000	1.306	2.529	3.603					
	*****	8.8%	7.2%	4.8%					
S/DEPTH=1.0	.000	.622	1.602	2.304	3.379	4.010			
	*****	6.8%	5.6%	4.2%	-2.2%	-6.8%			
S/DEPTH= .9	.000	.518	1.013	1.466	2.180	2.632			
	*****	6.2%	5.5%	4.5%	1.8%	-3.5%			
S/DEPTH= .8	.000	.324	.636	.923	1.386	1.696			
	*****	6.7%	6.2%	5.5%	3.4%	0.8%			
S/DEPTH= .7	.000	.200	.393	.571	.864	1.068			
	*****	6.0%	7.6%	7.1%	5.6%	3.2%			
S/DEPTH= .6	.000	.120	.236	.345	.524	.653			
	*****	5.0%	9.3%	9.0%	7.9%	6.2%			
S/DEPTH= .5	.000	.070	.137	.200	.306	.383			
	*****	4.0%	6.0%	6.0%	10.4%	9.1%			
S/DEPTH= .4	.000	.038	.075	.110	.168	.212			
	*****	3.0%	4.0%	4.0%	6.0%	11.8%			
S/DEPTH= .3	.000	.019	.037	.054	.083	.105			
	*****	2.0%	3.0%	3.0%	4.0%	6.0%			
S/DEPTH= .2	.000	.008	.015	.022	.034	.043			
	*****	1.0%	2.0%	2.0%	3.0%	4.0%			
S/DEPTH= .1	.000	.002	.004	.005	.008	.010			
	*****	0.5%	1.0%	1.0%	1.5%	2.0%			
S/DEPTH= .0	.000	.000	.000	.000	.000	.000			
	*****	0.0%	0.0%	0.0%	0.0%	0.0%			

CASE 8=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.611	.586	.521	.434	.243	.025	.0150	.0329	.0389
	18.2%	16.0%	9.8%	.2%	32.4%	*****	42.0%	16.3%	28.7%
SURFACE	1.223	1.173	1.042	.867	.486	.049	.299	.659	.777
S/DEPTH=1.1	12.0%	10.5%	6.5%	1.5%	8.7%	*****	1.9%	2.1%	5.4%
S/DEPTH=1.0	1.088	1.060	.979	.853					
S/DEPTH=.9	5.7%	5.2%	3.7%	1.3%					
S/DEPTH=.8	.861	.842	.787	.699	.446	.052	.232	.625	.772
S/DEPTH=.7	3.6%	3.2%	2.1%	.3%	6.1%	*****	12.6%	1.8%	4.8%
S/DEPTH=.6	.673	.660	.620	.557	.373	.078	12.6%	.463	.579
S/DEPTH=.5	2.9%	2.6%	1.7%	.2%	5.4%	.081	23.6%	5.5%	2.8%
S/DEPTH=.4	.522	.513	.484	.439	.303	.38.3%	36.1%	12.6%	9.7%
S/DEPTH=.3	2.9%	2.7%	1.9%	.6%	.4.5%	.075	36.1%	12.6%	9.7%
S/DEPTH=.2	.404	.397	.377	.343	.242	.35.9%	51.2%	19.8%	16.5%
S/DEPTH=.1	3.3%	3.1%	2.8%	1.2%	.3.9%	.065	*****	27.4%	23.6%
S/DEPTH=.0	.314	.309	.293	.268	.192	.055	*****	35.1%	30.7%
	3.8%	3.6%	2.9%	1.6%	.3.7%	.046	*****	30.7%	25.6%
	.245	.241	.230	.211	.153	.040	*****	37.9%	37.9%
	4.1%	3.9%	3.1%	1.8%	.4.1%	.035	*****	44.3%	44.3%
	.195	.192	.183	.168	.123	.032	*****	50.9%	50.9%
	.42%	.3.9%	3.1%	1.5%	.5.2%	.031	*****	56.4%	49.0%
	.159	.156	.149	.137	.101	.031	*****	58.4%	50.8%
	3.9%	3.6%	2.7%	.9%	.6.8%	.040	*****		
	.135	.133	.127	.117	.087	.035	*****		
	3.4%	3.1%	2.8%	1%	.8.6%	.032	*****		
	.121	.119	.114	.105	.078	.031	*****		
	3.0%	2.8%	1.8%	.7%	10.1%	.031	*****		
	.116	.115	.110	.101	.075	.031	*****		
	2.8%	2.4%	1.2%	1.0%	10.7%	.031	*****		

CASE 8=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.173	.295	.345	.281	.096	.049	.102	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.032	.017	.006	.057	.093	.066	.060	.132
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 8=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.125 (11.4%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.447 (-11.7%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.481 (-21.8%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.928 (-17.0%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.557 (-14.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.600 (2.4%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.956 (-6.7%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.604 (3.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.048 (205.1%)

CASE 8=C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.174114	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.071671	STREAM FUNCTION	.000033
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.346042	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.132408	STREAM FUNCTION	.000083
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.591216	STREAM FUNCTION	.514018
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.336441	STREAM FUNCTION	.320462

ITERATIONS ON ETA FAILED TO CONVERGE IN 40 ITER

CASE 8=D

8TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

M/LO = .168087 DPT/LO = .499998
 H/DPT = .336176
 L/LO = 1.193750 PSI/(G*H*T) = -.013882

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.955492E+02 X(2)/(H*T*G) = -.393876E+04
 X(3)/(H*T*G) = -.504770E+06 X(4)/(H*T*G) = -.959530E+08
 X(5)/(H*T*G) = -.207965E+09 X(6)/(H*T*G) = -.948658E+11
 X(7)/(H*T*G) = -.391061E+12 X(8)/(H*T*G) = -.259064E+13

TABLE 1. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD, . . . , DEFINED IN EQUATION (21)

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CASE 8-D

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.677	.572	.456	.355	.177	*****	.002	.140	.278
	26.1%	13.9%	2.9%	21.9%	81.2%		37.8%		54.7%
SURFACE	.000	1.466	1.922	2.143	2.318	2.167	1.803	.969	.000
S/DEPTH=1.2	*****	37.3%	8.0%	16.0%	45.9%	60.5%	56.3%	38.4%	*****
S/DEPTH=1.1	*****		1.499	1.997					
	*****		1.8%	7.8%					
S/DEPTH=1.0	*****		1.527	1.400	1.936				
	*****		3.4%	12.1%	24.2%				
S/DEPTH=.9	*****		1.706	1.004	1.437	1.663	1.577	.954	
	*****		8.8%	13.9%	21.9%	32.8%	42.8%	40.6%	
S/DEPTH=.8	*****		.261	.732	1.071	1.266	1.219	.746	
	*****		10.5%	13.7%	16.1%	26.9%	34.5%	43.3%	
S/DEPTH=.7	*****		.190	.538	.798	.960	.935	.579	.000
	*****		10.1%	12.2%	15.9%	21.5%	27.2%	34.1%	
S/DEPTH=.6	*****		.140	.377	.593	.722	.710	.444	.000
	*****		8.4%	9.9%	12.5%	16.6%	20.9%	26.2%	
S/DEPTH=.5	*****		.102	.290	.437	.536	.531	.335	.000
	*****		6.7%	7.3%	9.2%	12.3%	15.5%	19.6%	
S/DEPTH=.4	*****		.073	.209	.315	.389	.587	.246	.000
	*****		5.0%	4.7%	6.2%	8.5%	11.0%	14.3%	
S/DEPTH=.3	*****		.050	.144	.218	.270	.270	.172	.000
	*****		3.6%	2.4%	3.6%	5.4%	7.4%	10.1%	
S/DEPTH=.2	*****		.062	.090	.137	.170	.170	.109	.000
	*****		4.6%	3.0%	4.1%	5.1%	4.6%	3.1%	
S/DEPTH=.1	*****		.030	.043	.066	.082	.082	.053	.000
	*****		2.6%	1.7%	2.6%	3.1%	2.6%	1.7%	
S/DEPTH=.0	*****		.000	.000	.000	.000	.000	.000	.000
	*****		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

CASE 8=D

TABLE II=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.677	.572	.456	.355	.177	.002	.140	.278	.323
	26.1%	13.9%	=21.9%	=21.9%	=81.2%	*****	37.8%	=37.8%	=54.7%
SURFACE	*****	.000	17.938	17.450	16.162	15.609	13.153	10.582	5.588
	*****		67.8%	36.4%	3.5%	36.1%	66.5%	68.2%	52.8%
S/DEPTH=1.2	*****	.000							*****
S/DEPTH=1.1	*****	.000	8.397	13.311	15.284				
	*****		44.1%	30.6%	11.6%				
S/DEPTH=1.0	*****	.000	4.597	8.260	10.740	13.152			
	*****		25.5%	18.3%	8.2%	15.0%			
S/DEPTH=.9	*****	.000	2.892	5.442	7.456	9.839	10.478	9.415	5.506
	*****		13.6%	9.5%	3.4%	12.3%	33.2%	51.5%	55.1%
S/DEPTH=.8	*****	.000	1.959	3.761	5.289	7.345	8.183	7.532	4.441
	*****		6.8%	4.4%	.5%	9.9%	24.8%	38.6%	54.1%
S/DEPTH=.7	*****	.000	1.388	2.692	3.841	5.513	6.359	5.995	3.601
	*****		3.7%	2.2%	.8%	7.3%	17.7%	27.9%	39.8%
S/DEPTH=.6	*****	.000	1.015	1.980	2.850	4.182	4.955	4.770	2.921
	*****		3.3%	2.3%	.6%	4.1%	11.2%	18.6%	27.4%
S/DEPTH=.5	*****	.000	.763	1.494	2.162	3.222	3.896	3.818	2.382
	*****		2.2%	4.0%	1.683	2.536	5.2%	10.4%	16.7%
S/DEPTH=.4	*****	.000	.590	1.158	1.683	2.536	3.117	3.099	1.966
	*****		1.6%	6.9%	6.2%	4.1%	2.8%	2.8%	7.9%
S/DEPTH=.3	*****	.000	.473	.929	1.355	2.058	2.562	2.579	1.659
	*****		1.1%	10.4%	9.9%	8.5%	6.2%	3.8%	5.8%
S/DEPTH=.2	*****	.000	.397	.781	1.141	1.745	2.192	2.228	1.449
	*****		1.0%	8.8%	13.5%	11.0%	9.2%	6.9%	6.9%
S/DEPTH=.1	*****	.000	.354	.698	1.021	1.567	1.981	2.025	1.327
	*****		1.0%	6.8%	16.2%	14.3%	12.0%	11.0%	11.0%
S/DEPTH=.0	*****	.000	.341	.671	.982	1.509	1.912	1.959	1.287
	*****		1.0%	6.7%	17.2%	16.6%	15.5%	14.2%	12.5%

CASE R=0

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.677	.872	.456	.355	.177	.002	.140	.323
	26.1%	13.9%	-2.9%	-21.9%	-81.2%	*****	37.8%	-54.7%
SURFACE	-10.202	-8.804	-5.079	-3.883	-.035	3.617	6.973	9.848
S/DEPTH=1.2	67.3%	65.4%	56.8%	78.2%	*****	-118.8%	-69.7%	-49.3%
S/DEPTH=1.1	77.5%	13.062	-8.578	-4.801				
S/DEPTH=1.0	15.229	46.6%	32.9%	21.6%	1.645	12.0%	-45.2%	9.657
S/DEPTH=.9	51.5%	11.515	9.432	-6.854	-2.840	520	3.670	7.165
S/DEPTH=.8	12.343	22.3%	14.5%	3.6%	3.004	*****	-30.4%	-60.6%
S/DEPTH=.7	25.1%	9.332	8.204	8.1%	-24.8%	2.442	-39.2%	6.313
S/DEPTH=.6	9.744	8.1%	3.4%	-7.8%	-2.722	1.054	-18.7%	-45.2%
S/DEPTH=.5	9.0%	7.555	-6.674	-4.9%	-21.0%	*****	1.633	4.735
S/DEPTH=.4	7.595	1.5%	5.265	-8.9%	-2.038	3.00	-28.5%	-33.4%
S/DEPTH=.3	1.5%	3.2%	5.3%	-8.9%	17.2%	1.094	20.2%	3.509
S/DEPTH=.2	4.466	4.3%	-3.078	-6.3%	13.6%	3.367	-24.3%	2.542
S/DEPTH=.1	3.351	3.281	3.4%	6.8%	-1.821	*****	13.8%	1.761
	3.5%	3.8%	2.402	2.038	1.386	3.44	2.055	1.3%
	2.449	2.6%	1.5%	1.9%	10.2%	*****	1.412	17.3%
	1.708	1.676	1.583	1.433	7.3%	2.276	9.1%	12.1%
	1.0%	1.2%	1.0%	1.1%	7.3%	1.190	2.83	1.108
	1.079	1.060	1.002	.910	*****	*****	5.884	8.4%
	.2%	.1%	.5%	.15%	*****	*****	5.884	5.35
	.822	.513	.486	.442	3.11	.096	1.12	*****
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

CASE R=0

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.677	.572	.456	.355	.177	.002	.140	.278	.323
	.26,1%	13.9%	2.9%	21.9%	81.2%	*****	37.8%	37.8%	54.7%
SURFACE	4.956	3.509	2.275	1.450	.477	.035	.040	.343	.509
S/DEPTH=1.2	7.7%	24.5%	66.7%	105.6%	172.5%	*****	*****	24.8%	13.0%
	13.4%								
S/DEPTH=1.1	2.089	1.977	1.688	1.312				.333	.333
	43.3%	46.8%	56.5%	71.0%				28.8%	20.6
S/DEPTH=1.0	1.159	1.109	.973	.781	.364			*****	42.7%
	38.8%	40.7%	46.0%	54.5%	82.6%			*****	211
S/DEPTH= .9	.667	.642	.571	.467	.228	.025	.029	.129	.135
	30.4%	31.5%	34.6%	39.8%	*****	*****	*****	*****	*****
S/DEPTH= .8	.395	.381	.341	.283	.143	.017	.016	.082	.087
	20.3%	20.9%	22.9%	26.1%	*****	*****	*****	*****	*****
S/DEPTH= .7	.240	.251	.208	.174	.090	.012	.009	.053	.057
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.149	.144	.130	.109	.057	.008	.005	.034	.036
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.094	.091	.082	.069	.037	.005	.003	.022	.022
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.060	.058	.053	.044	.024	.004	.002	.013	.010
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.038	.037	.033	.028	.015	.002	.001	.006	.006
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.022	.022	.020	.017	.009	.001	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.010	.010	.009	.008	.004	.001	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 8=0

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 26.1%	.677 13.9%	.456 22.9%	.555 81.2%	.177 *****	75.0 *****	100.0 *****	130.0 *****	180.0 *****
SURFACE	.000	2.970	4.180	4.932	5.358	5.093	4.286	2.340	.000
S/DEPTH=1.2	***** .000	38.17%	16.3%	1.9%	25.3%	36.0%	31.6%	15.9%	*****
S/DEPTH=1.1	.000	1.832	3.363	4.527					
S/DEPTH=1.0	***** .000	19.3%	13.4%	5.9%	4.502				
S/DEPTH=.9	***** .000	11.2%	8.3%	4.1%	5.8%				
S/DEPTH=.8	***** .000	7.7%	6.0%	3.5%	3.1%	3.923	3.756	2.304	
S/DEPTH=.7	***** .000	6.7%	5.7%	4.1%	2.507	12.0%	20.0%	17.7%	.000
S/DEPTH=.6	***** .000	7.4%	6.7%	5.9%	1.869	6.7%	12.7%	19.7%	*****
S/DEPTH=.5	***** .000	3.23	8.9%	7.2%	2.6%	2.270	2.238	1.409	.000
S/DEPTH=.4	***** .000	.168	10.5%	10.0%	1.368	2.0%	6.5%	1.9%	.000
S/DEPTH=.3	***** .000	.115	12.6%	12.3%	5.6%	2.3%	1.702	1.084	.000
S/DEPTH=.2	***** .000	.072	14.2%	14.2%	1.020	1.286	1.275	.820	.000
S/DEPTH=.1	***** .000	.035	16.8%	16.8%	8.5%	6.0%	3.4%	.1%	.000
S/DEPTH=.0	***** .000	.000	10.0%	10.0%	11.1%	9.2%	7.2%	4.6%	.000
					13.3%	11.8%	10.2%	8.0%	.000
					15.1%	13.8%	12.4%	10.4%	.000
					15.3	19.3	11.98	1.30	.000
					*****	*****	*****	*****	.000
					*****	*****	*****	*****	.000
					*****	*****	*****	*****	.000

THE COMPONENTS OF THE MOMENT COMPONENT FIELD ARE DEFINED IN EQUATION (27)

425

[illegible]

CASE 8-D

TABLE 1X-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 26.1%	10.0 13.9%	20.0 22.9%	30.0 21.9%	50.0 81.2%	75.0 *****	100.0 37.8%	130.0 -37.8%	180.0 -54.7%
SURFACE	1.329	1.149	.916	.716	.357	.002	.281	.558	.649
S/DEPTH=1.2	24.5%	15.0%	1.9%	-6.5%	-26.5%	*****	-9.5%	.1%	5.6%
S/DEPTH=1.1	21.1%	.973	.855	.703	.348	.038	.228	.548	.511
S/DEPTH=1.0	7.6%	5.3%	.6%	-8.0%	.29.1%	*****	14.1%	.1.9%	.5.8%
S/DEPTH= .9	.6%	.775	.707	.605	.310	.054	.156	.415	.395
S/DEPTH= .8	.625	.610	.565	.497	.310	.058	.108	.317	.307
S/DEPTH= .7	.5.6%	.6.5%	.9.0%	.13.3%	.263	.054	.076	.244	.21.8%
S/DEPTH= .6	.488	.477	.447	.399	.29.2%	*****	100.3%	.29.3%	.242
S/DEPTH= .5	.8.7%	.9.4%	.11.4%	.15.0%	.145	.049	.054	.190	.35.2%
S/DEPTH= .4	.381	.374	.352	.317	.217	.043	.040	.151	.194
S/DEPTH= .3	.192	.188	.179	.164	.119	*****	60.2%	.49.0%	.160
S/DEPTH= .2	.159	.156	.149	.137	.100	.038	.031	.124	.62.5%
S/DEPTH= .1	.124	.122	.117	.107	.087	*****	76.1%	.76.1%	.137
S/DEPTH= .0	.120	.118	.113	.104	.077	.031	.025	.106	.74.5%
	.28.9%	.29.8%	.32.7%	.38.1%	.61.7%	*****	100.9%	.83.1%	.125
							.020	.100.9%	.120
							*****	104.6%	.86.2%

CASE R=D

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THEYA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	1.196	1.470	1.267	.669	.184	.083	.163	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION.... DEFINED IN EQ.(36)									
SURFACE	.002	.004	.021	.045	.096	.119	.067	.104	.194
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION.... DEFINED IN EQ.(37)									
SURFACE	.012	.003	.002	.003	.001	.001	.001	.001	.001

CASE 8=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.194 (16.5%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.353 (41.5%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.397 (65.0%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.750 (53.9%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.491 (50.6%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.855 (2.2%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.789 (31.3%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.548 (16.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.057 (279.9%)

CASE 8=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.625231	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.102419	STREAM FUNCTION	.001932
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	1.470195	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.193618	STREAM FUNCTION	.012371
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.900456	STREAM FUNCTION	.872877
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.406734	STREAM FUNCTION	.286778

CASE 9-A

4TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/G_0.28318)^{.5} T^{.5}$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .042615 DPT/LO = .999996

H/DPT = .042615

L/LO = 1.017578 PSI/(G*H*T) = -.005255

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.331177=03 X(2)/(H*T*G) = -.808196=09

X(3)/(H*T*G) = -.404253=13 X(4)/(H*T*G) = -.237110=17

CASE 9=A

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD....DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	10.0 5.34 6.3%	10.0 5.23 5.9%	20.0 4.94 4.8%	30.0 4.46 3.0%	50.0 3.10 3.7%	75.0 2.30 3.28%	100.0 2.16 2.49%	130.0 2.373 2.6%	180.0 2.466 2.7%
SURFACE	3.561	3.498	3.310	3.010	2.151	.813	.526	.2142	.2,724
S/DEPTH=1.0	.7%	.6%	1.0%	1.4%	.2%	.3,5%	.1,2%	.1,3%	.9,%
S/DEPTH= .9	3.094	3.046	2.906	2.676	1.982	.792	.291	.1,275	.1,662
S/DEPTH= .8	1.5%	1.5%	1.5%	1.6%	.8%	.2,5%	.0%	.7%	.8%
S/DEPTH= .7	1.667	1.641	1.566	1.483	1.070	.429	.156	.688	.897
S/DEPTH= .6	.5%	.5%	.6%	.7%	.7%	.1,1%	.3%	.4%	.3%
S/DEPTH= .5	.898	.885	.844	.778	.577	.232	.084	.371	.484
S/DEPTH= .4	.4%	.4%	.4%	.4%	.4%	.1%	.371	.1,4%	.1,4%
S/DEPTH= .3	.484	.477	.455	.419	.311	.125	.045	.200	.281
S/DEPTH= .2	1.4%	1.4%	1.4%	1.4%	1.4%	.068	.025	.108	.141
S/DEPTH= .1	.261	.257	.246	.226	.168	.088	.013	.059	.076
S/DEPTH= .0	2.4%	2.4%	2.4%	2.4%	.091	.037	.007	.032	.042
	.141	.139	.133	.122	.091	.020	.004	.018	.024
	.076	.075	.072	.066	.049	.020	.003	.012	.015
	.042	.041	.039	.036	.027	.011	.007	.010	.013
	.024	.024	.023	.021	.015	.006	.004	.002	.003
	.015	.015	.014	.013	.010	.004	.003	.001	.001
	.013	.013	.012	.011	.008	.003	.002	.001	.001

CASE 9=A

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.534	.523	.494	.466	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	2.6%	7.2%
SURFACE	.000	.619	1.208	1.744	2.574	3.062	2.946	1.792	.000
S/DEPTH=1.0	*****	.5%	.7%	1.0%	1.8%	2.5%	2.5%	1.6%	*****
	.000	.539	1.090	1.550	2.371	2.985			
S/DEPTH=.9	*****	1.2%	1.2%	1.3%	1.4%	1.6%	1.638	1.068	.000
	.000	.290	.571	.834	1.277	1.609	.7%	.09%	*****
S/DEPTH=.8	*****	.4%	.4%	.4%	.5%	.6%	.884	.576	.000
	.000	.156	.307	.449	.688	.867	.3%	.3%	*****
S/DEPTH=.7	*****	.5%	.5%	.5%	.5%	.4%	.477	.311	.000
	.000	.084	1.5%	1.4%	1.3%	1.4%	1.4%	1.3%	*****
S/DEPTH=.6	*****	.045	.089	.131	.200	.252	.257	.168	.000
	.000	.024	.048	.070	2.4%	2.4%	2.4%	2.4%	*****
S/DEPTH=.5	*****	.024	.048	.070	.108	.136	.138	.090	.000
	.000	.013	.026	.038	.058	.073	.074	.048	.000
S/DEPTH=.4	*****	.013	.026	.038	.058	.073	.074	.048	.000
	.000	.007	.014	.020	.031	.039	.039	.026	.000
S/DEPTH=.3	*****	.007	.014	.020	.031	.039	.039	.026	.000
	.000	.004	.007	.010	.015	.020	.020	.013	.000
S/DEPTH=.2	*****	.004	.007	.010	.015	.020	.020	.013	.000
	.000	.001	.003	.004	.006	.008	.008	.005	.000
S/DEPTH=.1	*****	.001	.003	.004	.006	.008	.008	.005	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 90A

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA ETA/HEIGHT=	10.0 5.34 6.3%	20.0 .494 4.8%	30.0 .446 3.0%	50.0 .310 3.7%	75.0 .097 32.8%	100.0 116 24.9%	130.0 373 28.6%	180.0 466 7.2%
SURFACE	.000	7.632	11.006	16.220	19.255	18.487	11.225	.000
S/DEPTH=1.0	.000	.12%	.8%	1.5%	2.4%	2.6%	1.9%	.000
S/DEPTH= .9	.000	.7%	.8%	1.1%	1.5%	.8%	1.0%	.000
S/DEPTH= .8	.000	.1%	.1%	.2%	.3%	.5%	1.0%	.000
S/DEPTH= .7	.000	.6%	.6%	.5%	.4%	.3%	1.0%	.000
S/DEPTH= .6	.000	.285	.562	1.821	2.4%	2.4%	2.3%	.000
S/DEPTH= .5	.000	.154	.303	.443	.679	.873	.570	.000
S/DEPTH= .4	.000	.083	.164	.240	.368	.473	.309	.000
S/DEPTH= .3	.000	.046	.090	.132	.202	.260	.169	.000
S/DEPTH= .2	.000	.026	.051	.075	.115	.148	.097	.000
S/DEPTH= .1	.000	.017	.033	.048	.074	.095	.062	.000
S/DEPTH= .0	.000	.014	.028	.040	.062	.080	.052	.000

CASE 9=A

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD.....DEFINED IN EQUATION (24)
 THETA = 0 10.0 20.0 30.0 50.0 75.0 100.0 130.0 180.0
 ETA/HEIGHT= .534 .523 .494 .446 .310 .097 .116 .373 .466
 6.3% 5.9% 4.8% 3.0% 3.7% 32.8% 24.9% 2.6% 7.2%

SURFACE	19.095	18.707	17.569	15.751	10.535	2.420	5.699	15.499	19.033
S/DEPTH=1.0	.00%	.1%	.3%	.7%	1.4%	1.6%	2.8%	1.8%	1.2%
S/DEPTH= .9	.7%	.7%	.8%	.9%	1.1%	1.7%	2.569	8.733	11.159
S/DEPTH= .8	.2%	.2%	.3%	.3%	.5%	1.0%	1.196	4.531	5.844
S/DEPTH= .7	.6%	.5%	.5%	.5%	.4%	.0%	.7%	.3%	.2%
S/DEPTH= .6	1.5%	1.5%	1.4%	1.4%	1.4%	.724	.592	1.4%	1.3%
S/DEPTH= .5	1.622	1.597	1.523	1.402	1.036	.406	.303	1.274	1.657
S/DEPTH= .4	2.4%	2.4%	2.4%	2.4%	2.4%	.682	.159	2.4%	2.4%
S/DEPTH= .3	.878	.864	.825	.759	.562	.223	.084	.364	.475
S/DEPTH= .2	.472	.465	.444	.409	.303	.121	.044	.193	.251
S/DEPTH= .1	.251	.247	.235	.217	.161	.085	.022	.097	.127
S/DEPTH= .0	.127	.125	.119	.110	.082	.035	.009	.041	.053
	.053	.052	.050	.046	.034	.014	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9-A

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.534	.523	.494	.446	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	2.6%	7.2%
SURFACE	1.025	.989	.886	.733	.375	.054	.022	.372	.602
S/DEPTH=1.0	.2%	.3%	.8%	1.4%	2.9%	4.9%	7.1%	1.1%	.0%
S/DEPTH= .9	.774	.750	.683	.580	.731%	.051	*****	.132	.224
S/DEPTH= .8	.225	.218	.198	.168	.093	.015	.007	.0%	.065
S/DEPTH= .7	.065	.063	.058	.049	.027	.004	.002	.038	.21%
S/DEPTH= .6	.23%	.2%	.17	.014	.008	.001	.001	.011	.019
S/DEPTH= .5	.019	.018	.017	.005	.002	.000	.000	.003	.006
S/DEPTH= .4	.006	.005	.005	.004	.002	.000	.000	.000	.004%
S/DEPTH= .3	.002	.002	.001	.001	.001	.000	.000	.001	.002
S/DEPTH= .2	.001	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=A

TABLE V-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT	0 .534 6.3%	10.0 .523 5.9%	20.0 .494 4.8%	30.0 .446 3.0%	50.0 .310 3.7%	75.0 .097 32.8%	100.0 24.9%	130.0 373 2.6%	180.0 466 7.2%
SURFACE	.000	.629	1.229	1.774	2.619	3.116	2.997	1.824	.000
S/DEPTH=1.0	***** .000	1.0% .548	.8% 1.079	.5% 1.577	.2% 2.413	.9% 3.037	.9% 3.037	.0% 3.037	***** .000
S/DEPTH=.9	***** .000	.3% .295	.3% .581	.3% .849	.2% 1.300	.0% 1.637	.8% 1.667	.7% 1.087	***** .000
S/DEPTH=.8	***** .000	1.1% .159	1.1% .313	1.1% .457	1.1% .700	1.0% .883	.8% .899	.7% .587	***** .000
S/DEPTH=.7	***** .000	2.0% .086	2.0% .169	2.0% .246	2.0% .377	1.9% .476	1.9% .485	1.8% .516	***** .000
S/DEPTH=.6	***** .000	***** .046	3.0% .091	3.0% .133	3.0% .203	2.9% .256	2.9% .261	2.9% .171	***** .000
S/DEPTH=.5	***** .000	***** .025	***** .049	***** .071	3.9% .110	3.9% .138	3.9% .141	3.9% .092	***** .000
S/DEPTH=.4	***** .000	***** .013	***** .026	***** .038	***** .059	***** .074	***** .076	***** .049	***** .000
S/DEPTH=.3	***** .000	***** .007	***** .014	***** .020	***** .031	***** .039	***** .040	***** .026	***** .000
S/DEPTH=.2	***** .000	***** .004	***** .007	***** .010	***** .016	***** .020	***** .020	***** .013	***** .000
S/DEPTH=.1	***** .000	***** .001	***** .003	***** .004	***** .007	***** .008	***** .008	***** .006	***** .000
S/DEPTH=.0	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000	***** .000

CASE 9=A

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT	0 .534 6.5	10.0 .523 5.9	20.0 .494 4.8	30.0 .446 3.0	50.0 .310 3.7	75.0 .097 32.8	100.0 .116 24.9	130.0 .373 2.6	180.0 .466 7.2
SURFACE	.966	.931	.833	.688	.349	.050	.020	.336	.541
S/DEPTH=1.0	.2% 1.71 1.7	.3% .690 1.7	.8% .628 1.8	.15% .533 1.9	.31% .293 2.2	.5% .047 2.2	.000% 0.000% 0.000%	.12% 0.000% 0.000%	.0% 0.000% 0.000%
S/DEPTH=.9	.184 2% 0.47	.179 2% 0.46	.163 1% 0.41	.138 1% 0.35	.076 1% 0.19	.012 0.000% 0.000%	.006 0.000% 0.000%	.108 0% 0.000%	.183 2% 0.047
S/DEPTH=.8	.012 0.03 0.01	.011 0.03 0.01	.010 0.03 0.01	.009 0.02 0.01	.005 0.01 0.00	.001 0.000% 0.000%	.000 0.000% 0.000%	.007 0.000% 0.000%	.012 0.000% 0.000%
S/DEPTH=.7	.003 0.01 0.00	.003 0.01 0.00	.003 0.01 0.00	.002 0.01 0.00	.001 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.002 0.000% 0.000%	.003 0.000% 0.000%
S/DEPTH=.6	.001 0.00 0.00	.001 0.00 0.00	.001 0.00 0.00	.001 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.001 0.000% 0.000%
S/DEPTH=.5	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%
S/DEPTH=.4	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%
S/DEPTH=.3	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%
S/DEPTH=.2	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%
S/DEPTH=.1	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%
S/DEPTH=.0	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.00 0.00	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%	.000 0.000% 0.000%

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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CASE 9=A

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.534	.523	.494	.446	.310	.097	.116	.373	.466
	6.3%	5.9%	4.8%	3.0%	3.7%	32.8%	24.9%	26.6%	7.2%
SURFACE	1.047	1.047	.988	.893	.620	.195	.231	.747	.933
S/DEPTH=1.0	1.0%	.9%	.7%	.4%	.3%	1.2%	.5%	.3%	.9%
S/DEPTH= .9	.937	.922	.876	.802	.577	.192	.113	.432	.557
S/DEPTH= .8	.83%	.73%	.5%	.2%	.0%	.7%	.2%	1.0%	1.0%
S/DEPTH= .7	.521	.513	.488	.448	.327	.120	2.1%	1.0%	.296
S/DEPTH= .6	1.0%	.9%	.6%	.9%	.7%	.2%	.056	.228	2.3%
S/DEPTH= .5	.285	.281	.268	.246	.181	.069	.44%	.122	.159
S/DEPTH= .4	1.7%	1.6%	1.6%	1.6%	1.3%	.1%	.029	.40%	3.7%
S/DEPTH= .3	2.2%	2.2%	2.0%	2.1%	1.7%	.021	.015	.066	.085
S/DEPTH= .2	2.5%	2.5%	2.4%	2.3%	1.7%	.021	.008	.5%	.50%
S/DEPTH= .1	.045	.045	.043	.039	.029	.011	.008	.035	.046
S/DEPTH= .0	.024	.024	.023	.021	.016	.006	.005	.019	.025
S/DEPTH= .3	.013	.013	.013	.012	.008	.003	.003	.011	.014
S/DEPTH= .2	.007	.007	.007	.006	.005	.002	.002	.006	.008
S/DEPTH= .1	.005	.005	.004	.004	.003	.001	.001	.004	.005
S/DEPTH= .0	.004	.004	.004	.003	.002	.001	.001	.003	.004

CASE 9-A

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.015	.019	.021	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.012	.010	.031	.029	.011	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9-A

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.018 (1.6%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (.1.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (.1.4%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.509 (.1.1%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.510 (.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	1.000 (.3%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.513 (1.0%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.004 (.23.7%)

CASE 9=A

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013164	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023644	STREAM FUNCTION	.000029
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021361	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.037525	STREAM FUNCTION	.000093
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.152756	STRFAM FUNCTION	.149151
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.130687	STRFAM FUNCTION	.129512

CASE 9-B

4TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2 * 2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .085197 DPT/LO = .999996
 H/DPT = .085197
 L/LO = 1.065234 PSI/(G*H*T) = -.009933

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.433331E+03 X(2)/(H*T*G) = -.100012E+07
 X(3)/(H*T*G) = -.160018E+11 X(4)/(H*T*G) = -.331298E+15

CASE 9=B

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT	12.1	11.2	8.4	3.8	12.5	108.7	36.7	7.5	18.0
SURFACE	3.994	3.698	3.627	3.216	2.154	.733	.513	1.867	2.327
S/DEPTH=1.0	2.7	3.22	4.5	6.5	11.2	18.8	1.5	4.9	3.3
S/DEPTH=.9	2.980	2.952	2.790	2.559	1.868	.712	.513	1.356	1.431
S/DEPTH=.8	2.5	2.7	2.7	2.62	1.80	1.1	.296	1.240	1.608
S/DEPTH=.7	1.638	1.613	1.537	1.413	1.040	.406	.16	1.240	1.608
S/DEPTH=.6	2.3	2.3	2.5	2.7	1.6	.67	.161	1.35	1.895
S/DEPTH=.5	2.04	1.890	1.89	.781	.577	.229	.088	1.688	1.895
S/DEPTH=.4	1.1	1.1	1.0	.9	.4	.128	.048	.5	1.1
S/DEPTH=.3	4.0	4.6	4.5	4.4	4.2	.071	.027	.382	.497
S/DEPTH=.2	4.377	4.273	4.260	.240	.178	.040	.015	.212	.40
S/DEPTH=.1	8.0	8.0	8.0	7.9	.099	.040	.008	7.8	7.7
S/DEPTH=.0	.154	.152	.115	.133	.099	.040	.027	.118	.154
S/DEPTH=.4	.086	.084	.081	.074	.055	.022	.015	.066	.086
S/DEPTH=.3	.049	.048	.046	.042	.031	.013	.008	.037	.048
S/DEPTH=.2	.029	.028	.027	.025	.018	.007	.005	.022	.029
S/DEPTH=.1	.019	.019	.018	.016	.012	.005	.003	.015	.019
S/DEPTH=.0	.016	.016	.015	.014	.010	.004	.003	.012	.016

CASE 9-B

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.569	.554	.513	.450	.286	.062	.137	.356	.431
	12.1%	11.2%	8.4%	3.8%	12.5%	108.7%	36.7%	7.5%	16.0%
SURFACE	.000	.707	1.358	1.911	2.656	2.939	2.673	1.541	.000
*****	.4%	.17%	.17%	.35%	.75%	.106%	.10.4%	.6.1%	*****
S/DEPTH#1.0	.000	.027	1.037	1.511	2.292	2.848			
*****	.3.2%	.3.2%	.3.5%	.9%	.4.9%	.6.5%			
S/DEPTH# .9	.000	.287	.565	.825	1.258	1.574	1.592	1.029	.000
*****	.1.3%	.1.4%	.1.4%	.1.5%	.2.0%	.2.8%	.3.6%	.4.7%	*****
S/DEPTH# .8	.000	.158	.311	.454	.694	.871	.884	.574	.000
*****	.1.6%	.1.6%	.1.6%	.1.5%	.1.2%	.8%	.4%	.2.2%	*****
S/DEPTH# .7	.000	.067	.171	.251	.383	.482	.491	.319	.000
*****	.4.8%	.4.8%	.4.8%	.4.7%	.4.6%	.4.4%	.4.2%	.3.8%	*****
S/DEPTH# .6	.000	.048	.095	.139	.212	.267	.272	.177	.000
*****	.0.27	.0.27	.0.27	.0.27	.0.27	.0.27	.0.27	.0.27	*****
S/DEPTH# .5	.000	.027	.052	.077	.117	.148	.151	.098	.000
*****	.0.15	.0.15	.0.15	.0.15	.0.15	.0.15	.0.15	.0.15	*****
S/DEPTH# .4	.000	.015	.029	.042	.065	.081	.083	.054	.000
*****	.0.08	.0.08	.0.08	.0.08	.0.08	.0.08	.0.08	.0.08	*****
S/DEPTH# .3	.000	.008	.016	.023	.035	.044	.045	.029	.000
*****	.0.04	.0.04	.0.04	.0.04	.0.04	.0.04	.0.04	.0.04	*****
S/DEPTH# .2	.000	.004	.008	.012	.018	.023	.023	.015	.000
*****	.0.02	.0.02	.0.02	.0.02	.0.02	.0.02	.0.02	.0.02	*****
S/DEPTH# .1	.000	.002	.003	.005	.008	.010	.010	.006	.000
*****	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	*****
S/DEPTH# .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
*****	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	.0.00	*****

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD, ..., DEFINED IN EQUATION, (24)

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.569	.554	.513	.450	.286	.062	.137	.356	.031
	12.1%	11.2%	8.4%	3.8%	-12.5%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	1.329	1.267	1.101	.870	.396	.048	.021	.296	.463
S/DEPTH=1.0	.1%	-1.9%	-4.2%	-7.7%	-15.7%	*****	*****	3.3%	5%
S/DEPTH=.9	.226	.219	.199	.169	.092	.014	.007	.131	.221
S/DEPTH=.8	.069	.067	.061	.052	.028	.004	.002	.040	.16%
S/DEPTH=.7	.021	.021	.019	.016	.009	.001	.001	.012	.068
S/DEPTH=.6	.007	.006	.006	.005	.003	.000	.000	.004	.021
S/DEPTH=.5	.002	.002	.002	.002	.001	.000	.000	.001	.007
S/DEPTH=.4	.001	.001	.001	.000	.000	.000	.000	.000	.002
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.001
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 90B

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	.569	.513	.450	.286	.062	.137	.356	.431
			8.4%	3.8%	-12.5%	-108.7%	36.7%	7.5%	-16.0%
SURFACE	.000	.750	1.442	2.030	2.823	3.126	2.844	1.640	.000
S/DEPTH=1.0	*****	5.3%	4.1%	2.4%	-1.3%	-4.1%	-4.0%	-4.4%	*****
S/DEPTH= .9	*****	.561	1.103	1.606	2.438	3.030			*****
S/DEPTH= .8	*****	2.7%	2.5%	2.1%	1.2%	1.3%			*****
S/DEPTH= .7	*****	.306	.602	.878	1.340	1.676	1.695	1.095	.000
S/DEPTH= .6	*****	4.7%	4.6%	4.5%	4.0%	3.3%	2.5%	1.5%	*****
S/DEPTH= .5	*****	.7.168	.331	.483	.739	.928	.942	.611	.000
S/DEPTH= .4	*****	.093	.183	.267	.408	.514	.523	.340	.000
S/DEPTH= .3	*****	.051	.101	.148	.226	.284	.290	.189	.000
S/DEPTH= .2	*****	.028	.056	.082	.125	.157	.160	.105	.000
S/DEPTH= .1	*****	.016	.031	.045	.069	.087	.088	.058	.000
S/DEPTH= .0	*****	.008	.017	.024	.037	.047	.048	.031	.000
	*****	.004	.009	.013	.019	.024	.025	.016	.000
	*****	.002	.004	.005	.008	.010	.011	.007	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

695	755
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11.2%	12.1%
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100

1.2201 20201

1881

099
199

181	20,42
170	20,42

62	62
6110	6010

870-
950-
870-
950-

%
%

.013 .013

姓名	性别	年龄	职业	住址	电话	备注
王某某	男	45	教师	XX路XX号	XXXX	
李某某	女	38	医生	XX街XX号	XXXX	
张某某	男	52	工人	XX巷XX号	XXXX	
赵某某	女	28	学生	XX村XX组	XXXX	
刘某某	男	60	农民	XX乡XX村	XXXX	
陈某某	女	42	干部	XX局XX室	XXXX	
周某某	男	35	商人	XX市场XX号	XXXX	
吴某某	女	55	退休	XX小区XX栋	XXXX	
郑某某	男	25	程序员	XX软件园	XXXX	
孙某某	女	48	会计	XX公司XX部	XXXX	
朱某某	男	30	工程师	XX研究所	XXXX	
林某某	女	58	教授	XX大学XX系	XXXX	
徐某某	男	22	实习生	XX企业XX处	XXXX	
马某某	女	40	护士	XX医院XX科	XXXX	
袁某某	男	65	退休	XX社区XX楼	XXXX	
李某某	女	33	记者	XX报社XX部	XXXX	
王某某	男	50	律师	XX律所XX楼	XXXX	
张某某	女	27	设计师	XX工作室	XXXX	
刘某某	男	43	司机	XX车队XX组	XXXX	
陈某某	女	62	退休	XX公园XX亭	XXXX	
周某某	男	37	程序员	XX公司XX部	XXXX	
吴某某	女	53	会计	XX公司XX部	XXXX	
郑某某	男	29	工程师	XX研究所	XXXX	
孙某某	女	47	教授	XX大学XX系	XXXX	
朱某某	男	24	实习生	XX企业XX处	XXXX	
林某某	女	39	护士	XX医院XX科	XXXX	
徐某某	男	59	退休	XX社区XX楼	XXXX	
马某某	女	34	记者	XX报社XX部	XXXX	
袁某某	男	51	律师	XX律所XX楼	XXXX	
李某某	女	26	设计师	XX工作室	XXXX	
王某某	男	44	司机	XX车队XX组	XXXX	
张某某	女	63	退休	XX公园XX亭	XXXX	
刘某某	男	36	程序员	XX公司XX部	XXXX	
陈某某	女	54	会计	XX公司XX部	XXXX	
周某某	男	31	工程师	XX研究所	XXXX	
吴某某	女	49	教授	XX大学XX系	XXXX	
郑某某	男	23	实习生	XX企业XX处	XXXX	
孙某某	女	38	护士	XX医院XX科	XXXX	
朱某某	男	58	退休	XX社区XX楼	XXXX	
林某某	女	32	记者	XX报社XX部	XXXX	
徐某某	男	50	律师	XX律所XX楼	XXXX	
马某某	女	27	设计师	XX工作室	XXXX	
袁某某	男	45	司机	XX车队XX组	XXXX	
李某某	女	64	退休	XX公园XX亭	XXXX	
王某某	男	35	程序员	XX公司XX部	XXXX	
张某某	女	55	会计	XX公司XX部	XXXX	
刘某某	男	30	工程师	XX研究所	XXXX	
陈某某	女	48	教授	XX大学XX系	XXXX	
周某某	男	25	实习生	XX企业XX处	XXXX	
吴某某	女	39	护士	XX医院XX科	XXXX	
郑某某	男	59	退休	XX社区XX楼	XXXX	
孙某某	女	34	记者	XX报社XX部	XXXX	
朱某某	男	51	律师	XX律所XX楼	XXXX	
林某某	女	26	设计师	XX工作室	XXXX	
徐某某	男	44	司机	XX车队XX组	XXXX	
马某某	女	63	退休	XX公园XX亭	XXXX	
袁某某	男	36	程序员	XX公司XX部	XXXX	
李某某	女	54	会计	XX公司XX部	XXXX	
王某某	男	31	工程师	XX研究所	XXXX	
张某某	女	49	教授	XX大学XX系	XXXX	
刘某某	男	23	实习生	XX企业XX处	XXXX	
陈某某	女	38	护士	XX医院XX科	XXXX	
周某某	男	58	退休	XX社区XX楼	XXXX	
吴某某	女	32	记者	XX报社XX部	XXXX	
郑某某	男	50	律师	XX律所XX楼	XXXX	
孙某某	女	27	设计师	XX工作室	XXXX	
朱某某	男	45	司机	XX车队XX组	XXXX	
林某某	女	64	退休	XX公园XX亭	XXXX	
徐某某	男	35	程序员			

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人口	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9

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人口	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9

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年份	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																																													
人口	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	31.0	31.1	31.2	

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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CASE 90B

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.569	.554	.513	.450	.286	.062	.137	.356	.431
	12.1%	11.2%	8.4%	3.8%	-12.5%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	1.138	1.109	1.026	.901	.572	.124	.274	.713	.862
S/DEPTH=1.0	4.5%	4.1%	3.0%	1.4%	-2.0%	-6.7%	-1.7%	1.2%	3.2%
	.890	.874	.826	.748	.515	.124			
	1.7%	1.6%	1.4%	.9%	.5%	-7.4%			
S/DEPTH= .9	.519	.510	.485	.443	.316	.102	.136	.456	.580
	2.9%	2.8%	2.6%	2.3%	.9%	-6.6%	10.0%	3.8%	2.9%
	.295	.291	.277	.254	.185	.066	.065	.244	.314
S/DEPTH= .8	4.4%	4.3%	4.1%	3.7%	2.1%	-7.3%	20.7%	9.7%	8.6%
	.166	.164	.156	.143	.105	.040	.033	.133	.172
S/DEPTH= .7	5.2%	5.1%	4.8%	4.3%	1.9%	*****	*****	16.4%	14.7%
	.093	.091	.087	.080	.059	.023	.018	.073	.095
S/DEPTH= .6	4.4%	4.2%	3.7%	2.9%	1.0%	*****	*****	25.1%	22.3%
	.052	.051	.049	.045	.033	.013	.010	.040	.053
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.029	.028	.027	.025	.018	.007	.005	.022	.029
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.016	.016	.015	.014	.010	.004	.003	.013	.017
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.010	.009	.009	.008	.006	.002	.002	.008	.010
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.006	.006	.006	.005	.004	.002	.001	.005	.007
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.005	.005	.005	.005	.003	.001	.001	.004	.006
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN E0.(35)									
SURFACE	.000	.045	.082	.104	.100	.040	.023	.052	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN E0.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN E0.(36)									
SURFACE	.043	.039	.028	.011	.030	.063	.053	.031	.082
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN E0.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9-B

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.065 (6.0%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (4.1%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.499 (8.2%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (6.2%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.528 (5.2%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.539 (.9%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (1.8%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.544 (2.8%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.016 (269.9%)

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TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.060271	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.047483	STREAM FUNCTION	.000022
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)	LINEAR	.109577	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)	LINEAR	.082394	STREAM FUNCTION	.000059
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)	LINEAR	.349061	STREAM FUNCTION	.319402
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)	LINEAR	.246508	STREAM FUNCTION	.238033

CASE 9=C

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO=(G/6.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .128025 DPT/LO = .999996

H/DPT = .128025

L/LO = 1.132813 PSI/(G*H*T) = -.013501

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.596822E+03 X(2)/(H*T*G) = -.581606E+07

X(3)/(H*T*G) = -.289623E+10

TABLE 1. DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (21)

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TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA ETA/HEIGHT=	0 .609 17.9%	10.0 .585 15.9%	20.0 .522 9.9%	30.0 .436 .6%	50.0 .245 31.1%	75.0 .026 *****	100.0 .0149 41.6%	130.0 .0330 15.9%	180.0 -.391 27.9%
SURFACE	***** .000	.850 4.8%	1.567 1%	2.095 6.1%	2.638 18.0%	2.674 25.8%	2.309 24.8%	1.284 15.5%	***** .000
S/DEPTH=1.0	***** .000	.521 4.6%	1.019 5.3%	1.474 6.5%	2.186 10.0%	2.624 15.6%	***** 1.088	***** 14.0%	***** .000
S/DEPTH= .9	***** .000	.283 2.7%	.556 3.1%	.808 3.6%	1.218 5.3%	1.697 8.1%	1.088 10.9%	1.045 14.0%	***** .000
S/DEPTH= .8	***** .000	.158 1.7%	.311 1.6%	.453 1.3%	.688 4%	.856 9%	.860 2.4%	.552 4.2%	***** .000
S/DEPTH= .7	***** .000	.089 .8%	.176 7.2%	.257 7.0%	.391 6.6%	.490 5.9%	.495 5.1%	.320 4.1%	***** .000
S/DEPTH= .6	***** .000	.051 .5%	.100 .5%	.146 .5%	.223 .5%	.280 .5%	.285 .5%	.185 .5%	***** .000
S/DEPTH= .5	***** .000	.029 .3%	.057 .3%	.083 .3%	.128 .3%	.160 .3%	.163 .3%	.106 .3%	***** .000
S/DEPTH= .4	***** .000	.016 .2%	.032 .2%	.047 .2%	.073 .2%	.091 .2%	.093 .2%	.061 .2%	***** .000
S/DEPTH= .3	***** .000	.009 .1%	.018 .1%	.027 .1%	.041 .1%	.051 .1%	.052 .1%	.034 .1%	***** .000
S/DEPTH= .2	***** .000	.005 .0%	.010 .0%	.014 .0%	.022 .0%	.027 .0%	.028 .0%	.018 .0%	***** .000
S/DEPTH= .1	***** .000	.002 .0%	.004 .0%	.006 .0%	.009 .0%	.012 .0%	.012 .0%	.008 .0%	***** .000
S/DEPTH= .0	***** .000	.000 .0%	.000 .0%	.000 .0%	.000 .0%	.000 .0%	.000 .0%	.000 .0%	***** .000

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

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TABLE 14=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA °	FTA/HEIGHT	VERTICAL °	ACCELERATION °	COMPONENT °	FIELD... °	DEFINED °	IN EQUATION (24)	
0	609	10.0	20.0	30.0	50.0	75.0	100.0	180.0
17.9%	17.9%	585	522	436	245	.026	.149	.391
		15.9%	9.9%	.6%	31.1%	*****	41.6%	27.9%
SURFACE								
S/DEPTH=1.0		15.439	14.675	9.815	3.727	2.746	7.602	14.576
		23.6%	22.5%	15.4%	15.7%	48.7%	32.6%	14.8%
		12.870	12.473	9.508	4.526	2.559		
		8.3%	7.8%	3.6%	5.2%	9.9%		
S/DEPTH=.9		8.430	8.242	6.804	4.252	2.261	3.766	8.788
		1.9%	1.6%	.8%	6.1%	*****	8.4%	19.702
		5.144	5.047	4.300	2.938	1.705	1.664	19.4%
S/DEPTH=.8		3.3%	3.1%	1.8%	1.1%	*****	2.7%	5.883
		3.048	2.996	2.591	1.841	1.584	2.594	6.4%
S/DEPTH=.7		7.6%	7.5%	6.8%	5.2%	3.93	10.4%	3.590
		1.779	1.750	1.525	1.105	*****	3.94	3.2%
S/DEPTH=.6		13.0%	12.9%	12.5%	11.6%	*****	11.8%	1.859
		11.029	11.013	8.886	6.649	2.244	11.817	11.1%
S/DEPTH=.5		18.5%	18.4%	18.3%	*****	*****	18.82%	17.7%
		11.589	11.580	11.509	11.375	11.145	11.2	11.598
S/DEPTH=.4		*****	*****	*****	*****	*****	*****	*****
		11.331	11.326	11.286	11.212	11.083	11.061	11.334
S/DEPTH=.3		*****	*****	*****	*****	*****	*****	*****
		11.176	11.173	11.152	11.113	11.045	11.032	11.177
S/DEPTH=.2		*****	*****	*****	*****	*****	*****	*****
		11.076	11.075	11.066	11.049	11.019	11.014	11.076
S/DEPTH=.1		*****	*****	*****	*****	*****	*****	*****
		11.000	11.000	11.000	11.000	11.000	11.000	11.000
S/DEPTH=.0		*****	*****	*****	*****	*****	*****	*****

CASE 9=C

TABLE V=DIMENSIONLESS DRAG FORCE COMPONENT FIELD....DEFINED IN EQUATION (25)

THETA ETA/HEIGHT=	0 17.9%	10.0 .585 15.9%	20.0 .522 9.9%	30.0 .436 .6%	50.0 .245 =31.1%	75.0 .026 *****	100.0 100.0 41.6%	130.0 =350 =15.9%	180.0 =391 =27.9%
SURFACE	1.720	1.597	1.296	.940	.360	.034	=.021	=.232	=.342
S/DEPTH=1.0	=.2.1%	=.5.3%	=.14.0%	=.25.9%	=.51.1%	*****	*****	=.7.7%	=.1%
S/DEPTH=.9	=.13.8%	=.14.3%	=.15.7%	=.18.1%	=.26.5%	*****	*****	=.123	=.204
S/DEPTH=.8	=.1.7%	=.1.9%	=.2.6%	=.3.6%	=.7.5%	*****	*****	=.7.1%	=.9.8%
S/DEPTH=.7	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=C

TABLE VI=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA ETA/HEIGHT=	0 17.9%	10.0 609	20.0 522	30.0 436	50.0 245	75.0 026	100.0 41.6%	130.0 330	180.0 391
ETA/HEIGHT=	17.9%	15.9%	9.9%	.6%	-31.1%	*****	*****	=15.9%	=27.9%
SURFACE	.000	.946	1.747	2.340	2.960	3.011	2.606	1.452	.000
S/DEPTH=1.0	*****	14.3%	10.2%	4.9%	5.9%	11.9%	10.8%	-2.4%	*****
S/DEPTH= .9	*****	.586	1.147	1.658	2.460	2.955			
S/DEPTH= .8	*****	6.9%	6.2%	5.2%	2.1%	2.9%	1.683	1.069	*****
S/DEPTH= .7	*****	.320	8.7%	9.14	1.377	1.693	1.8%	.9%	*****
S/DEPTH= .6	*****	9.0%	8.7%	8.0%	6.7%	4.2%	9.74	.625	*****
S/DEPTH= .5	*****	.179	352	.313	.779	.969	9.4%	7.8%	*****
S/DEPTH= .4	*****	13.0%	12.9%	12.6%	11.9%	10.7%	561	.362	*****
S/DEPTH= .3	*****	.101	.199	.291	.443	.555	16.0%	15.2%	*****
S/DEPTH= .2	*****	.058	17.9%	17.7%	17.4%	16.7%	322	.209	*****
S/DEPTH= .1	*****	.033	113	22.9%	253	22.4%	22.1%	21.6%	*****
S/DEPTH= .0	*****	.019	*****	.094	.144	.182	.185	.120	*****
	*****	.010	*****	.054	.082	.103	.105	.069	*****
	*****	.006	*****	.030	.046	.058	.059	.039	*****
	*****	.002	*****	.016	.024	.031	.031	.020	*****
	*****	.000	*****	.007	.011	.013	.014	.009	*****
	*****	.000	*****	.000	.000	.000	.000	.000	*****
	*****	.000	*****	.000	.000	.000	.000	.000	*****

CASE 9=C

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHTS	0 .609 17.9%	10.0 .585 15.9%	20.0 .522 9.9%	30.0 .436 6%	50.0 .245 31.1%	75.0 .026 *****	100.0 .149 41.6%	130.0 .330 15.9%	180.0 .391 27.9%
SURFACE	1.705	1.578	1.269	.909	.339	.031	.019	.201	.302
S/DEPTH=1.0	.14%	.4.8%	.14.2%	.27.0%	.54.6%	*****	*****	.8.2%	.1%
S/DEPTH= .9	.630	.608	.547	.455	.233	.030	*****	.099	.165
S/DEPTH= .8	.14.8%	.15.3%	.16.8%	.19.3%	.28.2%	*****	.006	.8.6%	.11.4%
S/DEPTH= .7	.179	.173	.156	.131	.070	.010	*****	.029	.048
S/DEPTH= .6	.2.9%	.3.1%	.3.8%	.4.9%	.020	.003	*****	*****	*****
S/DEPTH= .5	.051	.049	.045	.038	*****	*****	.000	.008	.014
S/DEPTH= .4	*****	*****	*****	*****	.006	.001	*****	*****	*****
S/DEPTH= .3	.014	.014	.013	.011	*****	*****	.000	.002	.004
S/DEPTH= .2	.004	.004	.003	.003	.002	.000	*****	*****	*****
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	.000	.001	*****
S/DEPTH= .0	.001	.001	.001	.001	.000	.000	*****	*****	*****
S/DEPTH= .4	*****	*****	*****	*****	*****	.000	.000	.000	.000
S/DEPTH= .3	.000	.000	.000	.000	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 9=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	10.0 .585 17.9%	20.0 .522 9.9%	30.0 .436 .6%	50.0 .245 31.1%	75.0 .026 *****	100.0 =.149 41.6%	130.0 =.330 15.9%	180.0 =.391 -27.3%
SURFACE	.000 *****	1.574 10.2%	2.078 3.9%	2.541 -8.3%	2.485 -16.3%	2.084 -15.1%	1.124 =4.8%	.000 *****
S/DEPTH=1.0	.000 *****	.487 5.7%	1.375 3.8%	2.033 .3%	2.429 -5.2%	1.213 -1.1%	.768 -4.2%	.000 *****
S/DEPTH= .9	.000 *****	.457 6.8%	.664 6.2%	.999 4.5%	1.224 1.7%	.607 6.5%	.388 4.7%	.000 *****
S/DEPTH= .8	.000 *****	.220 10.7%	.321 10.4%	.487 9.5%	.605 8.1%	.295 13.2%	.191 12.1%	.000 *****
S/DEPTH= .7	.000 *****	.105 *****	.154 15.2%	.234 14.8%	.292 14.0%	.137 19.2%	.090 *****	.000 *****
S/DEPTH= .6	.000 *****	.049 *****	.072 *****	.109 *****	.137 19.6%	.063 *****	.041 *****	.000 *****
S/DEPTH= .5	.000 *****	.022 *****	.032 *****	.049 *****	.062 *****	.027 *****	.018 *****	.000 *****
S/DEPTH= .4	.000 *****	.009 *****	.014 *****	.021 *****	.026 *****	.010 *****	.007 *****	.000 *****
S/DEPTH= .3	.000 *****	.004 *****	.005 *****	.008 *****	.010 *****	.003 *****	.002 *****	.000 *****
S/DEPTH= .2	.000 *****	.001 *****	.002 *****	.003 *****	.003 *****	.001 *****	.000 *****	.000 *****
S/DEPTH= .1	.000 *****	.000 *****	.000 *****	.001 *****	.001 *****	.000 *****	.000 *****	.000 *****
S/DEPTH= .0	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****	.000 *****

CASE 9=C

TABLE 1X=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA ETA/HEIGHT	0 17.9%	10.0 15.9%	20.0 9.9%	30.0 6%	40.0 4.36%	50.0 31.1%	60.0 24.5%	75.0 10.26%	100.0 41.6%	130.0 15.9%	180.0 27.9%
SURFACE	1.214	1.167	1.043	.872	.690	.522	.352	.182	.017	.006	.007
S/DEPTH=1.0	11.4%	10.1%	6.7%	2.2%	.7%	.052	.035	.015	.005	.002	.001
S/DEPTH= .9	3.2%	2.9%	2.0%	.4%	.5%	.080	.050	.020	.010	.005	.003
S/DEPTH= .8	2.6%	2.3%	1.6%	.4%	.4%	.062	.040	.020	.010	.005	.003
S/DEPTH= .7	2.9%	2.6%	1.9%	.6%	.4%	.041	.030	.015	.008	.004	.002
S/DEPTH= .6	1.3%	1.0%	.8%	.1%	.9%	.012	.008	.005	.003	.002	.001
S/DEPTH= .5	1.1%	.8%	.7%	.0%	.7%	.006	.004	.003	.002	.001	.001
S/DEPTH= .4	.8%	.6%	.5%	.0%	.5%	.003	.002	.002	.001	.001	.001
S/DEPTH= .3	.6%	.5%	.4%	.0%	.4%	.002	.001	.001	.001	.001	.001
S/DEPTH= .2	.5%	.4%	.3%	.0%	.3%	.001	.001	.001	.001	.001	.001
S/DEPTH= .1	.4%	.3%	.2%	.0%	.2%	.001	.001	.001	.001	.001	.001
S/DEPTH= .0	.3%	.2%	.1%	.0%	.1%	.001	.001	.001	.001	.001	.001

CASE 9=C

TABLE X=VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.181	.308	.359	.290	.098	.050	-.104	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	-.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.032	.017	.006	.059	.095	.067	-.062	-.135
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.002	.001	.000	.001	.000	.001	.000	-.001	.000

CASE 9=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.133 (11.6%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.449 (-11.5%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.482 (-21.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.932 (-16.7%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.542 (-15.8%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.581 (.8%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.959 (-6.4%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.572 (1.4%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.030 (307.8%)

CASE 9=C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.180193	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.073121	STREAM FUNCTION	.000680
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.359110	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.135257	STREAM FUNCTION	.002209
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.600004	STREAM FUNCTION	.510651
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.341079	STREAM FUNCTION	.314589

CASE 9-D

5TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$
 H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
 T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
 DPT = WATER DEPTH L = WAVE LENGTH
 PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .169650 DPT/LO = .999996
 H/DPT = .169650
 L/LO = 1.210937 PSI/(G*H*T) = .015022

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .781104*03 X(2)/(H*T*G) = .220209*06
 X(3)/(H*T*G) = .211929*09 X(4)/(H*T*G) = .255202*12
 X(5)/(H*T*G) = .595826*15

CASE 90D

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT=	0 .661 24.4%	10.0 17.3%	20.0 2.7%	30.0 15.6%	40.0 37.5%	50.0 72.0%	60.0 187	70.0 75.0	80.0 100.0	90.0 130.0	100.0 180.0
SURFACE	5.508	4.809	3.804	2.899	1.551	.366	.492	.1319	.16.0%	.1588	.16.0%
S/DEPTH=1.1	2.9%	7.7%	27.9%	48.7%	83.2%	154.9%	1.0%	21.2%	25.6%	30.1%	30.1%
S/DEPTH=1.0	6.4%	8.5%	25.4%	31.0%	48.8%	274	.305	1.022	25.6%	30.1%	30.1%
S/DEPTH=.9	2.599	2.535	2.352	2.075	1.356	.274	.47%	.613	.166	.14.4%	.14.4%
S/DEPTH=.8	1.456	1.428	1.346	1.216	.846	.183	.093	.367	.219	.12%	.12%
S/DEPTH=.7	15.1%	15.6%	17.0%	19.4%	27.3%	.512	.115	.367	.219	.12%	.12%
S/DEPTH=.6	8.41	8.26	7.83	7.15	5.12	.183	.093	.367	.219	.12%	.12%
S/DEPTH=.5	6.4%	6.6%	7.3%	8.4%	12.2%	.307	.115	.367	.219	.12%	.12%
S/DEPTH=.4	3.0%	2.9%	2.6%	2.0%	1%	.071	.053	.219	.12%	.12%	.12%
S/DEPTH=.3	12.3%	12.2%	12.7%	14.9	18.4	.043	.031	.131	.079	.048	.063
S/DEPTH=.2	.173	.170	.162	.149	.110	.043	.031	.131	.079	.048	.063
S/DEPTH=.1	.104	.102	.097	.089	.066	.026	.018	.079	.048	.063	.063
S/DEPTH=.0	.063	.062	.059	.055	.041	.016	.011	.048	.063	.063	.063
S/DEPTH=.0	.041	.040	.038	.035	.026	.010	.007	.031	.040	.040	.040
S/DEPTH=.0	.029	.029	.027	.025	.019	.007	.005	.022	.029	.029	.029
S/DEPTH=.0	.025	.025	.024	.022	.016	.007	.004	.020	.025	.025	.025

CASE 9-D

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.661	.595	.483	.375	.187	.002	.146	.291	.339
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	.000	1.222	1.893	2.213	2.395	2.262	1.891	1.020	.000
S/DEPTH=1.1	*****	24.7%	6.5%	12.5%	41.4%	53.8%	49.1%	31.5%	*****
S/DEPTH=1.0	*****	23.9%	1.006	1.420	1.991				
S/DEPTH=.9	*****	4.2%	6.7%	10.5%	20.8%				
S/DEPTH=.8	*****	7.0%	8.0%	9.6%	11.26	1.342	1.301	.802	.000
S/DEPTH=.7	*****	2.1%	2.8%	3.4%	5.6%	8.9%	12.3%	16.9%	.000
S/DEPTH=.6	*****	.051	4.8%	4.5%	3.4%	1.7%	.1%	2.5%	.000
S/DEPTH=.5	*****	.030	*****	12.9%	12.3%	11.4%	10.5%	9.2%	.000
S/DEPTH=.4	*****	.017	*****	*****	20.7%	20.2%	19.7%	10.8	.000
S/DEPTH=.3	*****	.010	*****	*****	.050	.097	.098	.064	.000
S/DEPTH=.2	*****	.005	*****	*****	.029	.056	.057	.037	.000
S/DEPTH=.1	*****	.002	*****	*****	.007	.013	.014	.009	.000
S/DEPTH=.0	*****	.000	*****	*****	.000	.000	.000	.000	.000

CASE: 9=0

TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	150.0	180.0
ETA/HEIGHT=	.661	.483	.375	.187	-.002	-.146	-.291	-.559
	24.4%	2.7%	-15.6%	-72.0%	*****	40.3%	-31.7%	-47.7%
SURFACE	.000	11.904	16.722	17.445	15.804	13.743	11.016	5.723
S/DEPTH=1.1	*****	51.4%	33.5%	10.4%	-34.6%	-59.1%	-60.7%	-47.3%
	.000	11.768						*****
S/DEPTH=1.0	*****	50.8%						*****
	.000	4.269						*****
S/DEPTH= .9	*****	19.8%	7.956	10.695	13.349			*****
	.000	1.969	15.2%	7.8%	-13.2%			*****
S/DEPTH= .8	*****	7.2%	3.795	5.365	7.521	8.446	7.815	4.616
	.000	1.032	5.1%	1.8%	-7.3%	-20.4%	-32.6%	-46.6%
S/DEPTH= .7	*****	5.4%	4.15%	2.898	4.551	5.027	4.823	2.938
	.000	.574	1.126	1.633	-1.3%	-8.0%	-14.7%	-22.9%
S/DEPTH= .6	*****	.330	8.9%	8.1%	6.0%	2.6%	-1.1%	1.825
	.000	.330	.648	.943	1.426	1.762	1.757	1.116
S/DEPTH= .5	*****	.193	.379	15.0%	14.0%	12.2%	10.2%	7.7%
	.000	.114	.225	.329	.501	.628	.636	.677
S/DEPTH= .4	*****	.069	.137	.200	.305	.384	.390	.411
	.000	.044	.087	.127	.195	.246	.250	.253
S/DEPTH= .3	*****	.032	.062	.091	.139	.176	.179	.163
	.000	.028	.055	.080	.122	.154	.158	.117
S/DEPTH= .2	*****	.028	.055	.080	.122	.154	.158	.103
	.000	.028	.055	.080	.122	.154	.158	.103
S/DEPTH= .1	*****	.028	.055	.080	.122	.154	.158	.103
	.000	.028	.055	.080	.122	.154	.158	.103
S/DEPTH= .0	*****	.028	.055	.080	.122	.154	.158	.103
	.000	.028	.055	.080	.122	.154	.158	.103

CASE 9=0

TABLE IV=DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.002	.146	.291	.539
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	.11.653	-10.741	-7.688	-4.491	.237	3.645	7.076	10.322	11.539
S/DEPTH=1.1	.72.9%	73.3%	73.7%	84.4%	*****	-110.5%	-67.3%	-42.3%	-31.7%
S/DEPTH=1.0	.12.131	-11.088	9.726	-7.257	-1.961	.454	3.840	7.692	9.102
S/DEPTH=.9	.23.9%	22.3%	17.3%	9.2%	-1.14%	*****	-25.4%	-43.7%	-48.3%
S/DEPTH=.8	.4.1%	3.3%	.8%	5.936	-3.24%	.383	1.754	4.338	5.281
S/DEPTH=.7	.1.8%	1.4%	.2%	-3.941	-2.537	*****	4.2%	18.9%	22.5%
S/DEPTH=.6	.6.4%	6.1%	5.2%	-1.9%	.8%	.457	9.2%	2.482	3.094
S/DEPTH=.5	.13.4%	13.3%	13.0%	-2.465	-1.698	*****	9.2%	-2.4%	-4.8%
S/DEPTH=.4	.21.0%	21.0%	20.8%	4.5%	.7%	.351	.425	1.937	1.822
S/DEPTH=.3	.35.1%	35.6%	33.9%	-1.503	-1.070	*****	*****	9.9%	8.4%
S/DEPTH=.2	.19.7%	19.4%	18.9%	12.4%	10.4%	-23.6	.225	.838	1.074
S/DEPTH=.1	.10.8%	10.8%	10.8%	20.5%	.655	*****	*****	19.7%	18.6%
S/DEPTH=.0	.0.0%	.0.0%	.0.0%	.537	.393	-1.48	.123	.489	.531
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.361	.356	.339	*****	.229	.089	.068	.281	.364
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.197	.194	.189	*****	.126	.049	.036	.152	.198
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.1087	.1085	.1081	.075	.055	.022	.016	.067	.087
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.0.0%	.0.0%	.0.0%	.0.0%	.0.0%	.0.0%	.0.0%	.0.0%	.0.0%
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9-D

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA ETA/HEIGHT	0 24.4%	10.0 5.95 17.3%	20.0 .483 2.7%	30.0 .375 -15.6%	50.0 .187 -72.0%	75.0 -0.02 *****	100.0 .146 40.3%	130.0 -1.291 -31.7%	180.0 -1.559 -47.7%
SURFACE	2.303	1.874	1.259	.795	.258	.019	-.019	-.171	-.253
S/DEPTH=1.1	1.0%	-16.1%	-50.0%	-86.6%	-149.7%	*****	*****	-19.2%	-7.0%
S/DEPTH=1.0	-16.1%	1.851	.501	.404	.191	*****	*****	*****	*****
S/DEPTH=.9	12.9%	34.4%	38.7%	45.9%	70.1%	*****	*****	*****	*****
S/DEPTH=.8	15.1%	15.7%	17.4%	20.3%	.026	*****	*****	*****	*****
S/DEPTH=.7	0.07	.064	.058	.049	.009	*****	*****	*****	*****
S/DEPTH=.6	0.23	.022	.020	.017	.009	*****	*****	*****	*****
S/DEPTH=.5	0.08	.008	.007	.006	.003	*****	*****	*****	*****
S/DEPTH=.4	0.03	.003	.003	.002	.001	*****	*****	*****	*****
S/DEPTH=.3	0.01	.001	.001	.001	.000	*****	*****	*****	*****
S/DEPTH=.2	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.1	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.0	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=1.1	1.0%	-16.1%	-50.0%	-86.6%	-149.7%	*****	*****	*****	*****
S/DEPTH=1.0	12.9%	34.4%	38.7%	45.9%	70.1%	*****	*****	*****	*****
S/DEPTH=.9	15.1%	15.7%	17.4%	20.3%	.026	*****	*****	*****	*****
S/DEPTH=.8	0.07	.064	.058	.049	.009	*****	*****	*****	*****
S/DEPTH=.7	0.23	.022	.020	.017	.009	*****	*****	*****	*****
S/DEPTH=.6	0.08	.008	.007	.006	.003	*****	*****	*****	*****
S/DEPTH=.5	0.03	.003	.003	.002	.001	*****	*****	*****	*****
S/DEPTH=.4	0.01	.001	.001	.001	.000	*****	*****	*****	*****
S/DEPTH=.3	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.2	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.1	0.00	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH=.0	0.00	.000	.000	.000	.000	*****	*****	*****	*****

CASE 9=0

TABLE V=DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	24.4%	.661	.483	.375	.187	-.002	-.146	-.291	-.359
		17.3%	2.7%	-15.6%	-72.0%	*****	40.3%	-31.7%	-47.7%
SURFACE	.000	1.354	2.150	2.562	2.836	2.709	2.273	1.230	.000
S/DEPTH=1.1	*****	31.9%	17.5%	2.7%	-19.6%	-28.7%	-24.2%	-9.3%	*****
S/DEPTH=1.0	*****	31.3%	1.194	1.688	2.374				
S/DEPTH= .9	*****	12.0%	10.0%	6.8%	-1.4%	1.619	1.569	.969	.000
S/DEPTH= .8	*****	11.0%	10.2%	8.9%	1.357	-.2%	-5.3%	-11.3%	*****
S/DEPTH= .7	*****	15.2%	14.8%	14.2%	5.2%	9.8%	6.9%	3.5%	*****
S/DEPTH= .6	*****	10.6%	10.3%	10.2%	7.84	9.8%	5.68	3.63	.000
S/DEPTH= .5	*****	.062	12.1	20.9%	20.1%	18.6%	17.1%	15.2%	*****
S/DEPTH= .4	*****	.036	21.2%	27.9%	.269	26.7%	25.9%	24.9%	.000
S/DEPTH= .3	*****	.021	*****	.104	34.3%	34.0%	33.6%	*****	.000
S/DEPTH= .2	*****	.012	*****	.061	.093	.117	.119	.077	.000
S/DEPTH= .1	*****	.007	*****	.035	.054	.068	.069	.045	.000
S/DEPTH= .0	*****	.003	*****	.024	.029	.037	.037	.024	.000
	*****	.000	*****	.019	.013	.016	.016	.011	.000
	*****	.000	*****	.008	.013	.016	.016	.011	.000
	*****	.000	*****	.000	.000	.000	.000	.000	.000
	*****	.000	*****	.000	.000	.000	.000	.000	.000

CASE 9=0

TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.002	.146	.201	.539
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	2.369	1.902	1.249	.770	.240	.017	.017	.146	.214
S/DEPTH=1.1	3.2%	14.8%	51.2%	91.3%	161.7%	*****	19.6%	6.1%	*****
S/DEPTH=1.0	1.994	1.877	.454	.366	.172	.006	.082	.133	.38.6%
	14.9%	16.4%	40.7%	48.3%	74.0%	*****	*****	*****	*****
S/DEPTH= .9	.538	.516	.136	.112	.057	.007	.026	.042	.013
	34.6%	36.1%	19.6%	*****	*****	*****	*****	*****	*****
S/DEPTH= .8	.157	.151	.041	.034	.018	.002	.008	.013	.004
	17.1%	17.7%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .7	.047	.045	.012	.010	.006	.001	.002	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.014	.014	.004	.003	.002	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.004	.004	.001	.001	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.001	.001	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9-D

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THEYTA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.661	.595	.483	.375	.187	.0002	.146	.291	.339
	24.4%	17.3%	2.7%	15.6%	72.0%	*****	40.3%	31.7%	47.7%
SURFACE	.000	1.294	1.993	2.301	2.414	2.193	1.772	.923	.000
S/DEPTH#1.1	*****	34.1%	18.0%	.9%	-25.6%	-37.2%	-31.7%	-13.1%	*****
S/DEPTH#1.0	*****	1.282	.993	1.397	1.945	1.153	1.110	.681	.000
S/DEPTH# .9	*****	33.4%	8.9%	5.3%	-4.2%	-4.3%	-10.4%	-17.5%	*****
S/DEPTH# .8	*****	11.2%	7.8%	6.3%	2.0%	.589	.580	.363	.000
S/DEPTH# .7	*****	8.8%	11.7%	11.0%	8.9%	5.6%	2.2%	-2.0%	*****
S/DEPTH# .6	*****	12.1%	.108	.157	.238	.294	.294	.187	.000
S/DEPTH# .5	*****	.055	*****	17.3%	16.2%	14.5%	12.6%	10.2%	*****
S/DEPTH# .4	*****	.026	.052	.075	.114	.143	.144	.092	.000
S/DEPTH# .3	*****	*****	*****	*****	23.5%	22.6%	21.6%	*****	*****
S/DEPTH# .2	*****	.012	.024	.035	.053	.067	.067	.043	.000
S/DEPTH# .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH# .0	*****	.005	.010	.015	.023	.029	.030	.019	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.002	.004	.006	.009	.012	.012	.008	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.001	.001	.002	.003	.004	.004	.003	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.001	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 9=0

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	24.4%	.661	.595	.483	.375	.187	.002	.146	.539
		17.5%	2.7%	2.7%	15.0%	72.0%	40.3%	31.7%	47.7%
SURFACE	1.303	1.193	.978	.758	.377	.002	.293	.584	.681
S/DEPTH=1.1	23.1%	18.2%	8.2%	2.4%	19.0%	*****	5.1%	4.9%	10.8%
S/DEPTH=1.0	1.254	1.190							
	20.1%	18.0%							
S/DEPTH=1.0	.819	.795	.729	.628	.365				
	1.6%	.7%	-2.1%	.6%	-22.7%	.054	.167	.440	.542
S/DEPTH= .9	.503	.492	.461	.412	.272	*****	41.6%	6.0%	.7%
	5.2%	5.8%	7.7%	11.1%	24.6%	.052	.082	.254	.319
S/DEPTH= .8	.304	.299	.282	.256	.178	*****	100.1%	33.6%	26.2%
	10.0%	10.6%	12.4%	15.0%	30.6%	.037	.043	.148	.189
S/DEPTH= .7	.182	.179	.170	.155	.111	*****	*****	65.2%	53.8%
	19.0%	19.8%	22.2%	26.6%	46.4%	.024	.024	.087	.112
S/DEPTH= .6	.109	.107	.102	.093	.068	*****	*****	108.2%	89.4%
	38.2%	39.4%	42.9%	49.6%	79.5%	.015	.014	.052	.067
S/DEPTH= .5	.065	.064	.061	.056	.041	*****	*****	*****	140.5%
	*****	*****	*****	*****	*****	*****	*****	.031	.041
S/DEPTH= .4	.039	.038	.036	.033	.024	*****	.008	*****	*****
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.023	.023	.022	.020	.015	*****	.005	.020	.025
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.015	.015	.014	.013	.009	*****	.004	.015	.016
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.010	.010	.010	.009	.006	*****	.003	.009	.012
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.009	.009	.008	.008	.005	*****	.003	.008	.011
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	1.266	1.528	1.300	.699	.186	-.084	-.163	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	-.000	-.000	-.000	.000	-.000	-.000	-.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	-.001	.005	.021	.045	.097	.121	.067	-.105	-.196
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.010	-.001	-.006	-.004	-.002	-.001	.001	.001	.002

CASE 9=D

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.211 (17.3%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.382 (-30.9%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.429 (-53.0%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.811 (-42.6%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.513 (-42.4%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.633 (-.1%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.853 (-21.5%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.558 (-10.2%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.045 (358.3%)

CASE 9=D

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	.646583	STREAM FUNCTION .000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.103706	STREAM FUNCTION .002664
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46)		
LINEAR	1.527811	STREAM FUNCTION .000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47)		
LINEAR	.196144	STREAM FUNCTION .009879
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48)		
LINEAR	.906048	STREAM FUNCTION .771611
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49)		
LINEAR	.410294	STREAM FUNCTION .314627

CASE 10=A

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/b.28318)*T**2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .042602 DPT/LO = 1.999993

H/DPT = -.021301

L/LO = 1.01773 PSI/(G*H*T) = -.005282

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.691165-06 X(2)/(H*T*G) = -.356470+14

X(3)/(H*T*G) = -.362598+21

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

485

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD... DEFINED IN EQUATION (23)

[illegible]

ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

487

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.533	.523	.494	.446	.310	.097	.116	.374	.467
	6.3%	5.9%	4.8%	3.0%	3.7%	33.0%	25.0%	2.5%	7.2%
SURFACE	.513	.494	.443	.367	.187	.027	.011	.186	.301
S/DEPTH=1.0	.02%	.03%	.07%	.14%	.29%	.4%	.011	.11%	.1%
	.387	.375	.342	.290	.159	.026			
S/DEPTH= .9	1.6%	1.6%	1.6%	1.7%	2.0%				
	.033	.032	.029	.025	.013	.002	.001	.019	.033
S/DEPTH= .8	2.3%	2.3%	2.3%	.002	.001	.000	.000	.002	2.2%
	.003	.003	.002	.002	.001	.000	.000	.000	.003
S/DEPTH= .7	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .6	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .5	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD... DEFINED IN EQUATION (26)

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA ETA/HEIGHT=	0 5.33 6.3%	10.0 5.23 5.9%	20.0 4.94 4.6%	30.0 4.46 3.0%	50.0 3.10 3.7%	75.0 2.97 33.0%	100.0 2.16 25.0%	130.0 1.374 2.5%	180.0 1.467 2.2%
SURFACE	.498 2.2%	.480 1.3%	.430 1.8%	.355 1.4%	.181 3.0%	.026 5.1%	.011 5.5%	.177 1.2%	.286 1%
S/DEPTH=1.0	.371 1.6%	.360 1.6%	.328 1.7%	.278 1.8%	.153 2.1%	.025 5.5%	.001 5.5%	.016 5.5%	.028 2.1%
S/DEPTH=.9	.028 2.5%	.027 2.5%	.025 2.5%	.021 2.5%	.012 2.5%	.002 2.5%	.000 2.5%	.000 2.5%	.002 2.5%
S/DEPTH=.8	.002 2.5%	.002 2.5%	.002 2.5%	.002 2.5%	.001 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.7	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.6	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.5	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.4	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.3	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.2	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.1	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%
S/DEPTH=.0	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%	.000 2.5%

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA =	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.533	.494	.446	.310	.097	.116	.374	.467
	6.3%	4.8%	3.0%	-3.7%	-33.0%	25.0%	-2.5%	-7.2%
SURFACE	.000	.293	.572	.024	1.212	1.435	1.374	.831
	*****	1.0%	.8%	.4%	.4%	-1.1%	-1.1%	*****
S/DEPTH=1.0	.000	.252	.496	.725	1.109	1.396	.240	.000
	*****	.5%	.2%	.2%	.1%	.1%	1.7%	*****
S/DEPTH= .9	.000	.065	.128	.187	.287	.362	.368	.000
	*****	*****	1.9%	1.9%	1.9%	1.8%	1.8%	*****
S/DEPTH= .8	.000	.017	.033	.048	.073	.092	.094	.000
	*****	*****	*****	*****	3.8%	3.8%	3.8%	*****
S/DEPTH= .7	.000	.004	.008	.012	.018	.023	.024	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.001	.002	.003	.004	.006	.006	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.000	.000	.001	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****

TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

492

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.008	.015	.019	.021	.009	.006	.015	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.028	.026	.020	.012	.010	.031	.029	.011	.038
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10-A

TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.018 (1.7%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.496 (-0.9%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.502 (-1.9%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.998 (-1.4%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.509 (-1.1%)
(6) DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.510 (-.3%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	1.000 (-0.1%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.513 (1.1%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.005 (239.0%)

CASE 10=A

TABLE XI(CONT)=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.013156	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.023637	STREAM FUNCTION	.000097
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.021347	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.037514	STREAM FUNCTION	.000209
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.152703	STREAM FUNCTION	.149073
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.130650	STREAM FUNCTION	.129486

CASE 10=8

3TH ORDER STREAM FUNCTION WAVE THEORY

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/g, 28318) * T ** 2$

DEFINITIONS

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .085218 DPT/LO = 1.999993

H/DPT = .042609

L/LO = 1.065234 PSI/(G*H*T) = -.009930

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.118895=05 X(2)/(H*T*G) = -.752306=13

X(3)/(H*T*G) = -.350184=19

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

497

TABLE II-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD... DEFINED IN EQUATION (22)

498

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.569	.554	.513	.450	.286	.062	.137	.356	.431
	12.1%	11.2%	8.4%	3.8%	-12.4%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	.000	4.644	8.888	12.440	17.030	18.501	16.602	9.478	.000
	*****	4.0%	2.4%	.1%	-5.3%	-10.3%	-11.7%	-9.0%	*****
S/DEPTH=1.0	.000	3.430	6.727	9.767	14.668	17.932			
	*****	3.2%	1.3%	-1.0%	-3.0%	-6.2%			
S/DEPTH= .9	.000	1.002	1.972	2.878	4.387	5.485	5.542	3.576	.000
	*****	2.6%	2.5%	2.4%	1.9%	1.0%	.1%	-1.0%	*****
S/DEPTH= .8	.000	.304	.598	.873	1.336	1.681	1.709	1.111	.000
	*****	.093	.183	.267	.410	.516	.526	.343	.000
S/DEPTH= .7	.000	.029	.056	.082	.126	.159	.162	.105	.000
	*****	.009	.017	.025	.039	.049	.050	.032	.000
S/DEPTH= .6	.000	.003	.005	.008	.012	.015	.015	.010	.000
	*****	.001	.002	.002	.004	.005	.005	.003	.000
S/DEPTH= .5	.000	.000	.001	.001	.001	.001	.001	.001	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)									
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	5.69	5.54	5.15	4.50	.286	.157	.356	.431
		11.0%	8.4%	3.8%	12.0%	108.7%	36.7%	7.5%	16.0%
SURFACE	-17.539	-17.017	-15.530	-13.274	-7.438	.347	7.153	14.590	17.138
S/DEPTH=1.0	4.4%	3.9%	2.7%	.9%	-2.5%	*****	-12.8%	-8.3%	-6.1%
	-14.540	-14.216	-13.203	-11.724	-7.195	.177			
S/DEPTH= .9	.6%	.5%	.0%	-.7%	-2.9%	*****			
	-5.299	-5.210	-4.944	-4.511	-3.210	-1.002	1.440	4.720	5.997
S/DEPTH= .8	2.0%	2.0%	1.9%	1.6%	.8%	-2.4%	2.6%	-.3%	-.0%
	-1.704	-1.677	-1.598	-1.469	-1.077	-.406	.345	1.368	1.770
S/DEPTH= .7	8.1%	8.1%	8.0%	7.9%	7.7%	*****	*****	7.6%	7.6%
	-531	-523	-.099	-.459	-.340	-.134	.097	.013	.537
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-164	-.161	-.154	-.142	-.105	-.042	.029	.126	.164
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.050	.050	.047	.044	-.032	-.013	.009	.039	.050
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.016	.015	.015	.013	.010	-.004	.003	.012	.016
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.005	.005	.004	.004	-.003	-.001	.001	.004	.005
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.001	.001	-.001	-.000	-.000	.001	.001
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	-.000	-.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	12.1%	11.2%	8.4%	3.8%	12.4%	108.7%	36.7%	7.5%	16.0%
SURFACE	.664	.634	.550	.435	.198	.024	.011	.148	.231
S/DEPTH=1.0	1.0%	1.0%	4.2%	7.7%	15.7%	*****	*****	3.4%	.5%
S/DEPTH= .9	5.7%	5.0%	6.3%	6.9%	9.2%	*****	*****	*****	6.3%
S/DEPTH= .8	7.6%	7.6%	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .7	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

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TABLE VII=DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.569	.554	.513	.450	.286	.062	.137	.356	.431
	12.1%	11.2%	6.4%	3.8%	-12.4%	-108.7%	36.7%	-7.5%	-16.0%
SURFACE	.652	.622	.539	.425	.192	.023	.010	.010	.217
	1.5%	1.8%	-4.3%	-7.9%	-16.2%	*****	*****	-3.5%	.5%
S/DEPTH=1.0	.356	.345	.313	.264	.142	.021	*****	*****	*****
	6.0%	6.1%	-6.5%	-7.2%	-9.5%	*****	*****	*****	*****
S/DEPTH= .9	.030	.029	.026	.022	.012	.002	.001	.017	.029
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .8	.002	.002	.002	.002	.001	.000	.000	.001	.002
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .7	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	10.0 0	20.0 .554	30.0 1.12	40.0 1.513	50.0 2.086	60.0 2.86	70.0 3.86	80.0 5.0	90.0 6.44	100.0 8.0	110.0 9.5	120.0 11.0	130.0 12.5	140.0 14.0	150.0 15.5	160.0 17.0	170.0 18.5	180.0 20.0	190.0 21.5	200.0 23.0	210.0 24.5	220.0 26.0	230.0 27.5	240.0 29.0	250.0 30.5	260.0 32.0	270.0 33.5	280.0 35.0	290.0 36.5	300.0 38.0	310.0 39.5	320.0 41.0	330.0 42.5	340.0 44.0	350.0 45.5	360.0 47.0	370.0 48.5	380.0 50.0	390.0 51.5	400.0 53.0	410.0 54.5	420.0 56.0	430.0 57.5	440.0 59.0	450.0 60.5	460.0 62.0	470.0 63.5	480.0 65.0	490.0 66.5	500.0 68.0	510.0 69.5	520.0 71.0	530.0 72.5	540.0 74.0	550.0 75.5	560.0 77.0	570.0 78.5	580.0 80.0	590.0 81.5	600.0 83.0	610.0 84.5	620.0 86.0	630.0 87.5	640.0 89.0	650.0 90.5	660.0 92.0	670.0 93.5	680.0 95.0	690.0 96.5	700.0 98.0	710.0 99.5	720.0 101.0	730.0 102.5	740.0 104.0	750.0 105.5	760.0 107.0	770.0 108.5	780.0 110.0	790.0 111.5	800.0 113.0	810.0 114.5	820.0 116.0	830.0 117.5	840.0 119.0	850.0 120.5	860.0 122.0	870.0 123.5	880.0 125.0	890.0 126.5	900.0 128.0	910.0 129.5	920.0 131.0	930.0 132.5	940.0 134.0	950.0 135.5	960.0 137.0	970.0 138.5	980.0 140.0	990.0 141.5	1000.0 143.0	1010.0 144.5	1020.0 146.0	1030.0 147.5	1040.0 149.0	1050.0 150.5	1060.0 152.0	1070.0 153.5	1080.0 155.0	1090.0 156.5	1100.0 158.0	1110.0 159.5	1120.0 161.0	1130.0 162.5	1140.0 164.0	1150.0 165.5	1160.0 167.0	1170.0 168.5	1180.0 170.0	1190.0 171.5	1200.0 173.0	1210.0 174.5	1220.0 176.0	1230.0 177.5	1240.0 179.0	1250.0 180.5	1260.0 182.0	1270.0 183.5	1280.0 185.0	1290.0 186.5	1300.0 188.0	1310.0 189.5	1320.0 191.0	1330.0 192.5	1340.0 194.0	1350.0 195.5	1360.0 197.0	1370.0 198.5	1380.0 200.0	1390.0 201.5	1400.0 203.0	1410.0 204.5	1420.0 206.0	1430.0 207.5	1440.0 209.0	1450.0 210.5	1460.0 212.0	1470.0 213.5	1480.0 215.0	1490.0 216.5	1500.0 218.0	1510.0 219.5	1520.0 221.0	1530.0 222.5	1540.0 224.0	1550.0 225.5	1560.0 227.0	1570.0 228.5	1580.0 230.0	1590.0 231.5	1600.0 233.0	1610.0 234.5	1620.0 236.0	1630.0 237.5	1640.0 239.0	1650.0 240.5	1660.0 242.0	1670.0 243.5	1680.0 245.0	1690.0 246.5	1700.0 248.0	1710.0 249.5	1720.0 251.0	1730.0 252.5	1740.0 254.0	1750.0 255.5	1760.0 257.0	1770.0 258.5	1780.0 260.0	1790.0 261.5	1800.0 263.0	1810.0 264.5	1820.0 266.0	1830.0 267.5	1840.0 269.0	1850.0 270.5	1860.0 272.0	1870.0 273.5	1880.0 275.0	1890.0 276.5	1900.0 278.0	1910.0 279.5	1920.0 281.0	1930.0 282.5	1940.0 284.0	1950.0 285.5	1960.0 287.0	1970.0 288.5	1980.0 290.0	1990.0 291.5	2000.0 293.0	2010.0 294.5	2020.0 296.0	2030.0 297.5	2040.0 299.0	2050.0 300.5	2060.0 302.0	2070.0 303.5	2080.0 305.0	2090.0 306.5	2100.0 308.0	2110.0 309.5	2120.0 311.0	2130.0 312.5	2140.0 314.0	2150.0 315.5	2160.0 317.0	2170.0 318.5	2180.0 320.0	2190.0 321.5	2200.0 323.0	2210.0 324.5	2220.0 326.0	2230.0 327.5	2240.0 329.0	2250.0 330.5	2260.0 332.0	2270.0 333.5	2280.0 335.0	2290.0 336.5	2300.0 338.0	2310.0 339.5	2320.0 341.0	2330.0 342.5	2340.0 344.0	2350.0 345.5	2360.0 347.0	2370.0 348.5	2380.0 350.0	2390.0 351.5	2400.0 353.0	2410.0 354.5	2420.0 356.0	2430.0 357.5	2440.0 359.0	2450.0 360.5	2460.0 362.0	2470.0 363.5	2480.0 365.0	2490.0 366.5	2500.0 368.0	2510.0 369.5	2520.0 371.0	2530.0 372.5	2540.0 374.0	2550.0 375.5	2560.0 377.0	2570.0 378.5	2580.0 380.0	2590.0 381.5	2600.0 383.0	2610.0 384.5	2620.0 386.0	2630.0 387.5	2640.0 389.0	2650.0 390.5	2660.0 392.0	2670.0 393.5	2680.0 395.0	2690.0 396.5	2700.0 398.0	2710.0 399.5	2720.0 401.0	2730.0 402.5	2740.0 404.0	2750.0 405.5	2760.0 407.0	2770.0 408.5	2780.0 410.0	2790.0 411.5	2800.0 413.0	2810.0 414.5	2820.0 416.0	2830.0 417.5	2840.0 419.0	2850.0 420.5	2860.0 422.0	2870.0 423.5	2880.0 425.0	2890.0 426.5	2900.0 428.0	2910.0 429.5	2920.0 431.0	2930.0 432.5	2940.0 434.0	2950.0 435.5	2960.0 437.0	2970.0 438.5	2980.0 440.0	2990.0 441.5	3000.0 443.0	3010.0 444.5	3020.0 446.0	3030.0 447.5	3040.0 449.0	3050.0 450.5	3060.0 452.0	3070.0 453.5	3080.0 455.0	3090.0 456.5	3100.0 458.0	3110.0 459.5	3120.0 461.0	3130.0 462.5	3140.0 464.0	3150.0 465.5	3160.0 467.0	3170.0 468.5	3180.0 470.0	3190.0 471.5	3200.0 473.0	3210.0 474.5	3220.0 476.0	3230.0 477.5	3240.0 479.0	3250.0 480.5	3260.0 482.0	3270.0 483.5	3280.0 485.0	3290.0 486.5	3300.0 488.0	3310.0 489.5	3320.0 491.0	3330.0 492.5	3340.0 494.0	3350.0 495.5	3360.0 497.0	3370.0 498.5	3380.0 500.0	3390.0 501.5	3400.0 503.0	3410.0 504.5	3420.0 506.0	3430.0 507.5	3440.0 509.0	3450.0 510.5	3460.0 512.0	3470.0 513.5	3480.0 515.0	3490.0 516.5	3500.0 518.0	3510.0 519.5	3520.0 521.0	3530.0 522.5	3540.0 524.0	3550.0 525.5	3560.0 527.0	3570.0 528.5	3580.0 530.0	3590.0 531.5	3600.0 533.0	3610.0 534.5	3620.0 536.0	3630.0 537.5	3640.0 539.0	3650.0 540.5	3660.0 542.0	3670.0 543.5	3680.0 545.0	3690.0 546.5	3700.0 548.0	3710.0 549.5	3720.0 551.0	3730.0 552.5	3740.0 554.0	3750.0 555.5	3760.0 557.0	3770.0 558.5	3780.0 560.0	3790.0 561.5	3800.0 563.0	3810.0 564.5	3820.0 566.0	3830.0 567.5	3840.0 569.0	3850.0 570.5	3860.0 572.0	3870.0 573.5	3880.0 575.0	3890.0 576.5	3900.0 578.0	3910.0 579.5	3920.0 581.0	3930.0 582.5	3940.0 584.0	3950.0 585.5	3960.0 587.0	3970.0 588.5	3980.0 590.0	3990.0 591.5	4000.0 593.0	4010.0 594.5	4020.0 596.0	4030.0 597.5	4040.0 599.0	4050.0 600.5	4060.0 602.0	4070.0 603.5	4080.0 605.0	4090.0 606.5	4100.0 608.0	4110.0 609.5	4120.0 611.0	4130.0 612.5	4140.0 614.0	4150.0 615.5	4160.0 617.0	4170.0 618.5	4180.0 620.0	4190.0 621.5	4200.0 623.0	4210.0 624.5	4220.0 626.0	4230.0 627.5	4240.0 629.0	4250.0 630.5	4260.0 632.0	4270.0 633.5	4280.0 635.0	4290.0 636.5	4300.0 638.0	4310.0 639.5	4320.0 641.0	4330.0 642.5	4340.0 644.0	4350.0 645.5	4360.0 647.0	4370.0 648.5	4380.0 650.0	4390.0 651.5	4400.0 653.0	4410.0 654.5	4420.0 656.0	4430.0 657.5	4440.0 659.0	4450.0 660.5	4460.0 662.0	4470.0 663.5	4480.0 665.0	4490.0 666.5	4500.0 668.0	4510.0 669.5	4520.0 671.0	4530.0 672.5	4540.0 674.0	4550.0 675.5	4560.0 677.0	4570.0 678.5	4580.0 680.0	4590.0 681.5	4600.0 683.0	4610.0 684.5	4620.0 686.0	4630.0 687.5	4640.0 689.0	4650.0 690.5	4660.0 692.0	4670.0 693.5	4680.0 695.0	4690.0 696.5	4700.0 698.0	4710.0 699.5	4720.0 701.0	4730.0 702.5	4740.0 704.0	4750.0 705.5	4760.0 707.0	4770.0 708.5	4780.0 710.0	4790.0 711.5	4800.0 713.0	4810.0 714.5	4820.0 716.0	4830.0 717.5	4840.0 719.0	4850.0 720.5	4860.0 722.0	4870.0 723.5	4880.0 725.0	4890.0 726.5	4900.0 728.0	4910.0 729.5	4920.0 731.0	4930.0 732.5	4940.0 734.0	4950.0 735.5	4960.0 737.0	4970.0 738.5	4980.0 740.0	4990.0 741.5	5000.0 743.0	5010.0 744.5	5020.0 746.0	5030.0 747.5	5040.0 749.0	5050.0 750.5	5060.0 752.0	5070.0 753.5	5080.0 755.0	5090.0 756.5	5100.0 758.0	5110.0 759.5	5120.0 761.0	5130.0 762.5	5140.0 764.0	5150.0 765.5	5160.0 767.0	5170.0 768.5	5180.0 770.0	5190.0 771.5	5200.0 773.0	5210.0 774.5	5220.0 776.0	5230.0 777.5	5240.0 779.0	5250.0 780.5	5260.0 782.0	5270.0 783.5	5280.0 785.0	5290.0 786.5	5300.0 788.0	5310.0 789.5	5320.0 791.0	5330.0 792.5	5340.0 794.0	5350.0 795.5	5360.0 797.0	5370.0 798.5	5380.0 800.0	5390.0 801.5	5400.0 803.0	5410.0 804.5	5420.0 806.0	5430.0 807.5	5440.0 809.0	5450.0 810.5	5460.0 812.0	5470.0 813.5	5480.0 815.0	5490.0 816.5	5500.0 818.0	5510.0 819.5	5520.0 821.0	5530.0 822.5	5540.0 824.0	5550.0 825.5	5560.0 827.0	5570.0 828.5	5580.0 830.0	5590.0 831.5	5600.0 833.0	5610.0 834.5	5620.0 836.0	5630.0 837.5	5640.0 839.0	5650.0 840.5	5660.0 842.0	5670.0 843.5	5680.0 845.0	5690.0 846.5	5700.0 848.0	5710.0 849.5	5720.0 851.0	5730.0 852.5	5740.0 854.0	5750.0 855.5	5760.0 857.0	5770.0 858.5	5780.0 860.0	5790.0 861.5	5800.0 863.0	5810.0 864.5	5820.0 866.0	5830.0 867.5	5840.0 869.0	5850.0 870.5	5860.0 872.0	5870.0 873.5	5880.0 875.0	5890.0 876.5	5900.0 878.0	5910.0 879.5	5920.0 881.0	5930.0 882.5	5940.0 884.0	5950.0 885.5	5960.0 887.0	5970.0 888.5	5980.0 890.0	5990.0 891.5	6000.0 893.0	6010.0 894.5	6020.0 896.0	6030.0 897.5	6040.0 899.0	6050.0 900.5	6060.0 902.0	6070.0 903.5	6080.0 905.0	6090.0 906.5	6100.0 908.0	6110.0 909.5	6120.0 911.0	6130.0 912.5	6140.0 914.0	6150.0 915.5	6160.0 917.0	6170.0 918.5	6180.0 920.0	6190.0 921.5	6200.0 923.0	6210.0 924.5	6220.0 926.0	6230.0 927.5	6240.0 929.0	6250.0 930.5	6260.0 932.0	6270.0 933.5	6280.0 935.0	6290.0 936.5	6300.0 938.0	6310.0 939.5	6320.0 941.0	6330.0 942.5	6340.0 944.0	6350.0 945.5	6360.0 947.0	6370.0 948.5	6380.0 950.0	6390.0 951.5	6400.0 953.0	6410.0 954.5	6420.0 956.0	6430.0 957.5	6440.0 959.0	6450.0 960.5	6460.0 962.0	6470.0 963.5	6480.0 965.0	6490.0 966.5	6500.0 968.0	6510.0 969.5	6520.0 971.0	6530.0 972.5	6540.0 974.0	6550.0 975.5	6560.0 977.0	6570.0 978.5	6580.0 980.0	6590.0 981.5	6600.0 983.0	6610.0 984.5	6620.0 986.0	6630.0 987.5	6640.0 989.0	6650.0 990.5	6660.0 992.0	6670.0 993.5	6680.0 995.0	6690.0 996.5	6700.0 998.0	6710.0 999.5	6720.0 1001.0	6730.0 1002.5	6740.0 1004.0	6750.0 1005.5	6760.0 1007.0	6770.0 1008.5	6780.0 1010.0	6790.0 1011.5	6800.0 1013.0	6810.0 1014.5	6820.0 1016.0	6830.0 1017.5	6840.0 1019.0	6850.0 1020.5	6860.0 1022.0	6870.0 1023.5	6880.0 1025.0	6890.0 1026.5	
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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

505

CASE 1008

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.045	.082	.104	.101	.040	.023	.052	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.043	.039	.028	.011	.030	.063	.053	.031	.082
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE XI-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.065 (6.0%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.480 (-4.1%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.499 (-8.2%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.979 (-6.2%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.528 (-5.2%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.539 (.9%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.992 (-1.8%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.543 (2.8%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.016 (271.3%)

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TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.060306	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.047496	STREAM FUNCTION	.000041
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.109646	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.082420	STREAM FUNCTION	.000070
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.349169	STREAM FUNCTION	.319433
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.246562	STREAM FUNCTION	.237878

CASE 10=C

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $L_0 = (G/6.28318) * T^2$
H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT
T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT
DPT = WATER DEPTH L = WAVE LENGTH
PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .127534 DPT/LO = 1.999993
H/DPT = .063767
L/LO = 1.134375 PSI/(G*H*T) = .013600

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = -.237092E+05 X(2)/(H*T*G) = -.930477E+12
X(3)/(H*T*G) = -.183259E+17

CASE 10=C

TABLE 1=DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA ETA/HEIGHT	0 .608 17.8%	10.0 .584 15.7%	20.0 .521 9.8%	30.0 .435 .5%	50.0 .245 -31.3%	75.0 .026 *****	100.0 -1.149 41.9%	130.0 -1.531 -15.6%	160.0 -1.392 -27.6%
SURFACE	4.517	4.341	3.881	3.270	1.969	.563	-.511	1.597	1.958
S/DEPTH=1.0	3.7%	5.6%	10.7%	17.6%	32.5%	60.1%	5%	10.8%	7.4%
S/DEPTH=.9	10.8%	11.2%	12.5%	14.2%	20.8%	46.3%	1.67	1.673	3.868
S/DEPTH=.8	4%	3%	0%	4%	2.0%	*****	*****	1.9%	3.0%
S/DEPTH=.7	13.0%	13.0%	12.9%	12.8%	*****	*****	*****	1.223	12.0%
S/DEPTH=.6	0.032	0.31	0.30	0.28	0.20	0.08	0.06	0.024	0.32
S/DEPTH=.5	0.10	0.10	0.10	0.09	0.07	0.03	0.02	0.008	0.10
S/DEPTH=.4	0.003	0.003	0.003	0.003	0.002	0.001	0.001	0.003	0.003
S/DEPTH=.3	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001
S/DEPTH=.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S/DEPTH=.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S/DEPTH=.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

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TABLE III-DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD, ., ., DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.608	.584	.521	.435	.245	.026	.149	.331	.392
	17.8%	15.7%	9.8%	5%	31.3%	*****	41.9%	15.6%	27.6%
SURFACE	.000	6.244	11.311	14.747	17.533	16.707	13.923	7.647	.000
	*****	18.7%	13.1%	5.4%	11.4%	26.5%	30.1%	22.0%	*****
S/DEPTH=1.0	.000	3.662	7.105	10.139	14.480	16.413			
	*****	6.5%	5.1%	2.7%	4.3%	16.1%			
S/DEPTH= .9	.000	1.033	2.026	2.924	4.428	5.423	5.369	3.389	.000
	*****	5.5%	5.1%	4.5%	2.8%	11.1%	3.1%	6.6%	*****
S/DEPTH= .8	.000	.525	.639	.933	1.422	1.777	1.795	1.157	.000
	*****	*****	*****	14.2%	13.7%	13.0%	12.1%	11.3%	*****
S/DEPTH= .7	.000	.106	.208	.304	.465	.585	.595	.386	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .6	.000	.035	.068	.100	.153	.193	.197	.128	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	.000	.011	.023	.033	.051	.064	.065	.042	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	.000	.004	.007	.011	.017	.021	.021	.014	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	.000	.001	.002	.004	.006	.007	.007	.005	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	.000	.000	.001	.001	.002	.002	.002	.002	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	.000	.000	.000	.000	.001	.001	.001	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	.000	.000	.000	.000	.000	.001	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

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TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)												
THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0			
ETA/HEIGHT=	17.6%	15.7%	9.8%	5.21	4.35	2.45	1.49	-.331	-.392			
				5%	-31.3%	*****	41.9%	-15.6%	27.6%			
SURFACE	15.540	-14.769	12.699	-9.867	-3.738	2.759	7.616	12.745	14.583			
	23.6%	22.4%	19.2%	15.1%	14.3%	46.5%	32.1%	20.7%	14.9%			
S/DEPTH=1.0	12.931	-12.531	11.368	-9.544	-8.534	2.575						
	8.5%	8.0%	6.4%	3.7%	-5.6%	8.0%						
S/DEPTH=.9	5.165	-5.068	4.181	-4.317	-2.947	1.706	1.671	4.732	5.897			
	3.6%	3.4%	2.9%	2.1%	-.8%	*****	3.3%	4.5%	6.1%			
S/DEPTH=.8	1.790	-1.761	1.675	-1.534	-1.112	1.395	.396	1.457	1.869			
	13.5%	13.4%	13.3%	13.0%	12.1%	*****	*****	12.3%	11.6%			
S/DEPTH=.7	5.000	-5.591	5.563	-5.518	-3.182	1.148	.114	.469	.609			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.6	1.199	-1.196	1.187	-.172	-.128	-.051	.036	.154	.200			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.5	1.066	-1.065	1.062	-.057	-.042	-.017	.012	.051	.066			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.4	1.022	-1.021	1.020	-.019	-.014	-.006	.004	.017	.022			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.3	1.007	-1.007	1.007	-.006	-.005	-.002	.001	.006	.007			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.2	1.002	-1.002	1.002	-.002	-.002	-.001	.000	.002	.002			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.1	1.001	-1.001	1.001	-.001	-.000	-.000	.000	.001	.001			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			
S/DEPTH=.0	1.000	-1.000	1.000	.000	.000	.000	.000	.000	.000			
	*****	*****	*****	*****	*****	*****	*****	*****	*****			

CASE 10=C

TABLE V-DIMENSIONLESS DRAG FORCE COMPONENT FIELD...DEFINED IN EQUATION (25)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0
ETA/HEIGHT =	.608	17.8%	15.7%	15.8%	9.8%	.521	.435	.245	.026	.026	.026	.026	.026	.026	.026	.026	.026	.026	.026
SURFACE	.860	.799	.648	.470	.180	.017	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
S/DEPTH=1.0	.15%	.335	.302	.251	.129	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016
S/DEPTH= .9	.13.2%	.13.7%	.15.1%	.17.5%	.26.1%	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002	.002
S/DEPTH= .8	.004	.004	.003	.003	.002	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD, DEFINED IN EQUATION (26)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	17.8%	6.08	5.84	4.35	.245	.026	.149	.331	.392
		15.7%	9.8%	5%	-31.3%	*****	41.9%	-15.6%	-27.6%
SURFACE	.000	.474	.876	1.173	1.484	1.510	1.306	.728	.000
S/DEPTH=1.0	*****	14.6%	10.6%	5.3%	-5.0%	-11.6%	-10.6%	-2.42%	*****
	.000	.295	.516	.833	1.235	1.482	.489	.314	.000
S/DEPTH=.9	*****	7.3%	6.7%	5.6%	2.5%	-2.5%	.98%	8.2%	*****
	.000	.090	.177	.258	.391	.487	.162	.105	.000
S/DEPTH=.8	*****	13.5%	13.3%	13.1%	12.3%	11.1%	22.6%	22.1%	*****
	.000	.029	.057	.083	.127	.160	.054	.035	.000
S/DEPTH=.7	*****	*****	*****	23.5%	23.3%	22.9%	*****	*****	*****
	.000	.010	.019	.027	.042	.053	.018	.012	.000
S/DEPTH=.6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.003	.006	.009	.014	.017	.006	.004	.000
S/DEPTH=.5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.001	.002	.003	.005	.006	.002	.001	.000
S/DEPTH=.4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.001	.001	.002	.002	.001	.000	.000
S/DEPTH=.3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.001	.001	.000	.000
S/DEPTH=.2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THETA =	0	10.0	20.0	30.0	40.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT =	.608	.584	.521	.435	.245	.026	.026	.149	.331	.392
	17.8%	15.7%	9.8%	5%	-31.3%	*****	*****	41.9%	-15.6%	-27.6%
SURFACE	.856	.794	.641	.462	.175	.016	.016	.010	.109	.164
S/DEPTH=1.0	-1.5%	-4.8%	-13.7%	-25.9%	-52.3%	*****	*****	*****	-7.6%	.1%
	.332	.321	.288	.240	.123	.016	.016			
	-13.7%	-14.2%	-15.6%	-18.1%	-26.9%	*****	*****			
S/DEPTH=.9	.031	.030	.027	.023	.012	.002	.002	.001	.018	.029
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.8	.003	.003	.003	.002	.001	.000	.000	.000	.002	.003
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.6	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10=C

TABLE VIII=DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

THETA ETA/HEIGHT	0 17.8%	10.0 15.7%	20.0 9.8%	30.0 5%	40.0 5%	50.0 31.3%	60.0 24.5%	75.0 26%	100.0 41.9%	130.0 15.6%	180.0 27.6%
SURFACE	.000	.453	.832	1.107	1.378	1.377	1.174	.645	.000	.000	.000
S/DEPTH=1.0	.000	.14.9%	.10.5%	.4.8%	.6.4%	.13.6%	.12.5%	.3.4%	.000	.000	.000
S/DEPTH=.9	.000	.6.7%	.6.1%	.4.9%	.1.6%	.3.6%	.396	.254	.000	.000	.000
S/DEPTH=.8	.000	.12.5%	.12.4%	.12.1%	.11.3%	.10.0%	.8.6%	.6.8%	.000	.000	.000
S/DEPTH=.7	.000	.021	.041	.059	.091	.114	.115	.075	.000	.000	.000
S/DEPTH=.6	.000	.006	.011	.017	.026	.032	.033	.021	.000	.000	.000
S/DEPTH=.5	.000	.002	.003	.005	.007	.009	.009	.006	.000	.000	.000
S/DEPTH=.4	.000	.000	.001	.001	.002	.002	.002	.002	.000	.000	.000
S/DEPTH=.3	.000	.000	.000	.000	.000	.001	.001	.000	.000	.000	.000
S/DEPTH=.2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH=.0	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

CASE 10=C

TABLE IX=DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	17.8%	15.7%	9.8%	5.21	5%	31.3%	245	.026	.149	.331	.392
								*****	41.9%	15.6%	27.8%
SURFACE	1.216	1.169	1.045	.873	.490	.050	.299	.663	.786		
S/DEPTH=1.0	11.5%	10.2%	6.8%	2.2%	.74%	*****	.26%	3.0%	7.0%		
	.859	.840	.786	.699	.408	.053					
S/DEPTH= .9	3.4%	3.1%	2.2%	.6%	.53%	*****	.077	.259	.350		
	.307	.302	.286	.261	.186	.061	52.3%	20.7%	17.5%		
S/DEPTH= .8	2.9%	2.7%	2.0%	.6%	.51%	*****	.021	.083	.107		
	.103	.102	.097	.089	.065	.024	*****	58.6%	50.2%		
S/DEPTH= .7	5.7%	6.2%	7.1%	10.6%	23.3%	*****	.007	.028	.036		
	.034	.033	.032	.029	.021	.008	*****	.010	.012		
S/DEPTH= .6	*****	*****	*****	.009	.006	.002	.003	*****	*****		
	.011	.010	.010	*****	*****	*****	*****	*****	*****		
S/DEPTH= .5	*****	*****	*****	.003	.002	.000	.002	.004	.005		
	.003	.003	.003	*****	*****	*****	*****	*****	*****		
S/DEPTH= .4	*****	*****	*****	.000	.000	.001	.001	.002	.002		
	.000	.000	.000	*****	*****	*****	*****	*****	*****		
S/DEPTH= .3	*****	*****	*****	.001	.001	.001	.001	.001	.001		
	.000	.000	.001	*****	*****	*****	*****	*****	*****		
S/DEPTH= .2	*****	*****	*****	.001	.001	.001	.001	.001	.001		
	.001	.001	.001	*****	*****	*****	*****	*****	*****		
S/DEPTH= .1	*****	*****	*****	.001	.001	.001	.001	.001	.001		
	.001	.001	.001	*****	*****	*****	*****	*****	*****		
S/DEPTH= .0	*****	*****	*****	.001	.001	.001	.001	.001	.001		
	.001	.001	.001	*****	*****	*****	*****	*****	*****		

CASE 10-C

TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA=	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.178	.303	.354	.287	.097	.049	.103	.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	.000	.000	.000	.000	.000	.000	.000	.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	.038	.033	.017	.006	.058	.094	.067	.062	.135
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.000	.000	.001	.002	.000	.001	.000	.000	.001

CASE 10=C

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1) DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	.134 (11.8%)
(2) DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.450 (11.2%)
(3) DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.483 (21.4%)
(4) DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.933 (16.5%)
(5) DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.542 (15.5%)
(6) DIMENSIONLESS GROUP VFLOCITY DEFINED IN EQUATION (42)	.581 (.9%)
(7) DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.962 (6.1%)
(8) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.574 (1.8%)
(9) DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.031 (300.7%)

CASE 10-C

TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.177997	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.072805	STREAM FUNCTION	.000719
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.354296	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.134600	STREAM FUNCTION	.001646
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.596771	STREAM FUNCTION	.507823
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.340150	STREAM FUNCTION	.315433

CASE 10=D

3TH ORDER STREAM FUNCTION WAVE THEORY

DEFINITIONS

LO = DEEP WATER WAVE LENGTH, CALCULATED FROM LINEAR WAVE THEORY, $LO = (G/6.28318) * T^2$

H = WAVE HEIGHT G = GRAVITATIONAL CONSTANT

T = WAVE PERIOD X(N) = NTH STREAM FUNCTION COEFFICIENT

DPT = WATER DEPTH L = WAVE LENGTH

PSI = VALUE OF STREAM FUNCTION ON THE FREE SURFACE

WAVE CHARACTERISTICS

H/LO = .170401 DPT/LO = 1.999993

H/DPT = .085201

L/LO = 1.222070 PSI/(G*H*T) = .015407

LISTING OF DIMENSIONLESS STREAM FUNCTION COEFFICIENTS

X(1)/(H*T*G) = .488993E-05 X(2)/(H*T*G) = .863825E-11

X(3)/(H*T*G) = .638304E-16

CASE 10-D

TABLE 1-DIMENSIONLESS HORIZONTAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (21)

THETA =	0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0	150.0	160.0	170.0	180.0	190.0	200.0	210.0	220.0	230.0	240.0	250.0	260.0	270.0	280.0	290.0	300.0	310.0	320.0	330.0	340.0	350.0	360.0	370.0	380.0	390.0	400.0	410.0	420.0	430.0	440.0	450.0	460.0	470.0	480.0	490.0	500.0	510.0	520.0	530.0	540.0	550.0	560.0	570.0	580.0	590.0	600.0	610.0	620.0	630.0	640.0	650.0	660.0	670.0	680.0	690.0	700.0	710.0	720.0	730.0	740.0	750.0	760.0	770.0	780.0	790.0	800.0	810.0	820.0	830.0	840.0	850.0	860.0	870.0	880.0	890.0	900.0	910.0	920.0	930.0	940.0	950.0	960.0	970.0	980.0	990.0	1000.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
ETA/HEIGHT=	21.9%	18.4%	15.0%	11.6%	8.3%	5.0%	1.7%	-1.7%	-5.0%	-8.3%	-11.6%	-15.0%	-18.4%	-21.9%	-25.4%	-28.9%	-32.4%	-35.9%	-39.4%	-42.9%	-46.4%	-49.9%	-53.4%	-56.9%	-60.4%	-63.9%	-67.4%	-70.9%	-74.4%	-77.9%	-81.4%	-84.9%	-88.4%	-91.9%	-95.4%	-98.9%	-102.4%	-105.9%	-109.4%	-112.9%	-116.4%	-119.9%	-123.4%	-126.9%	-130.4%	-133.9%	-137.4%	-140.9%	-144.4%	-147.9%	-151.4%	-154.9%	-158.4%	-161.9%	-165.4%	-168.9%	-172.4%	-175.9%	-179.4%	-182.9%	-186.4%	-189.9%	-193.4%	-196.9%	-200.4%	-203.9%	-207.4%	-210.9%	-214.4%	-217.9%	-221.4%	-224.9%	-228.4%	-231.9%	-235.4%	-238.9%	-242.4%	-245.9%	-249.4%	-252.9%	-256.4%	-259.9%	-263.4%	-266.9%	-270.4%	-273.9%	-277.4%	-280.9%	-284.4%	-287.9%	-291.4%	-294.9%	-298.4%	-301.9%	-305.4%	-308.9%	-312.4%	-315.9%	-319.4%	-322.9%	-326.4%	-329.9%	-333.4%	-336.9%	-340.4%	-343.9%	-347.4%	-350.9%	-354.4%	-357.9%	-361.4%	-364.9%	-368.4%	-371.9%	-375.4%	-378.9%	-382.4%	-385.9%	-389.4%	-392.9%	-396.4%	-399.9%	-403.4%	-406.9%	-410.4%	-413.9%	-417.4%	-420.9%	-424.4%	-427.9%	-431.4%	-434.9%	-438.4%	-441.9%	-445.4%	-448.9%	-452.4%	-455.9%	-459.4%	-462.9%	-466.4%	-469.9%	-473.4%	-476.9%	-480.4%	-483.9%	-487.4%	-490.9%	-494.4%	-497.9%	-501.4%	-504.9%	-508.4%	-511.9%	-515.4%	-518.9%	-522.4%	-525.9%	-529.4%	-532.9%	-536.4%	-539.9%	-543.4%	-546.9%	-550.4%	-553.9%	-557.4%	-560.9%	-564.4%	-567.9%	-571.4%	-574.9%	-578.4%	-581.9%	-585.4%	-588.9%	-592.4%	-595.9%	-599.4%	-602.9%	-606.4%	-609.9%	-613.4%	-616.9%	-620.4%	-623.9%	-627.4%	-630.9%	-634.4%	-637.9%	-641.4%	-644.9%	-648.4%	-651.9%	-655.4%	-658.9%	-662.4%	-665.9%	-669.4%	-672.9%	-676.4%	-679.9%	-683.4%	-686.9%	-690.4%	-693.9%	-697.4%	-700.9%	-704.4%	-707.9%	-711.4%	-714.9%	-718.4%	-721.9%	-725.4%	-728.9%	-732.4%	-735.9%	-739.4%	-742.9%	-746.4%	-749.9%	-753.4%	-756.9%	-760.4%	-763.9%	-767.4%	-770.9%	-774.4%	-777.9%	-781.4%	-784.9%	-788.4%	-791.9%	-795.4%	-798.9%	-802.4%	-805.9%	-809.4%	-812.9%	-816.4%	-819.9%	-823.4%	-826.9%	-830.4%	-833.9%	-837.4%	-840.9%	-844.4%	-847.9%	-851.4%	-854.9%	-858.4%	-861.9%	-865.4%	-868.9%	-872.4%	-875.9%	-879.4%	-882.9%	-886.4%	-889.9%	-893.4%	-896.9%	-900.4%	-903.9%	-907.4%	-910.9%	-914.4%	-917.9%	-921.4%	-924.9%	-928.4%	-931.9%	-935.4%	-938.9%	-942.4%	-945.9%	-949.4%	-952.9%	-956.4%	-959.9%	-963.4%	-966.9%	-970.4%	-973.9%	-977.4%	-980.9%	-984.4%	-987.9%	-991.4%	-994.9%	-998.4%	-1001.9%	-1005.4%	-1008.9%	-1012.4%	-1015.9%	-1019.4%	-1022.9%	-1026.4%	-1029.9%	-1033.4%	-1036.9%	-1040.4%	-1043.9%	-1047.4%	-1050.9%	-1054.4%	-1057.9%	-1061.4%	-1064.9%	-1068.4%	-1071.9%	-1075.4%	-1078.9%	-1082.4%	-1085.9%	-1089.4%	-1092.9%	-1096.4%	-1099.9%	-1103.4%	-1106.9%	-1110.4%	-1113.9%	-1117.4%	-1120.9%	-1124.4%	-1127.9%	-1131.4%	-1134.9%	-1138.4%	-1141.9%	-1145.4%	-1148.9%	-1152.4%	-1155.9%	-1159.4%	-1162.9%	-1166.4%	-1169.9%	-1173.4%	-1176.9%	-1180.4%	-1183.9%	-1187.4%	-1190.9%	-1194.4%	-1197.9%	-1201.4%	-1204.9%	-1208.4%	-1211.9%	-1215.4%	-1218.9%	-1222.4%	-1225.9%	-1229.4%	-1232.9%	-1236.4%	-1239.9%	-1243.4%	-1246.9%	-1250.4%	-1253.9%	-1257.4%	-1260.9%	-1264.4%	-1267.9%	-1271.4%	-1274.9%	-1278.4%	-1281.9%	-1285.4%	-1288.9%	-1292.4%	-1295.9%	-1299.4%	-1302.9%	-1306.4%	-1309.9%	-1313.4%	-1316.9%	-1320.4%	-1323.9%	-1327.4%	-1330.9%	-1334.4%	-1337.9%	-1341.4%	-1344.9%	-1348.4%	-1351.9%	-1355.4%	-1358.9%	-1362.4%	-1365.9%	-1369.4%	-1372.9%	-1376.4%	-1379.9%	-1383.4%	-1386.9%	-1390.4%	-1393.9%	-1397.4%	-1400.9%	-1404.4%	-1407.9%	-1411.4%	-1414.9%	-1418.4%	-1421.9%	-1425.4%	-1428.9%	-1432.4%	-1435.9%	-1439.4%	-1442.9%	-1446.4%	-1449.9%	-1453.4%	-1456.9%	-1460.4%	-1463.9%	-1467.4%	-1470.9%	-1474.4%	-1477.9%	-1481.4%	-1484.9%	-1488.4%	-1491.9%	-1495.4%	-1498.9%	-1502.4%	-1505.9%	-1509.4%	-1512.9%	-1516.4%	-1519.9%	-1523.4%	-1526.9%	-1530.4%	-1533.9%	-1537.4%	-1540.9%	-1544.4%	-1547.9%	-1551.4%	-1554.9%	-1558.4%	-1561.9%	-1565.4%	-1568.9%	-1572.4%	-1575.9%	-1579.4%	-1582.9%	-1586.4%	-1589.9%	-1593.4%	-1596.9%	-1600.4%	-1603.9%	-1607.4%	-1610.9%	-1614.4%	-1617.9%	-1621.4%	-1624.9%	-1628.4%	-1631.9%	-1635.4%	-1638.9%	-1642.4%	-1645.9%	-1649.4%	-1652.9%	-1656.4%	-1659.9%	-1663.4%	-1666.9%	-1670.4%	-1673.9%	-1677.4%	-1680.9%	-1684.4%	-1687.9%	-1691.4%	-1694.9%	-1698.4%	-1701.9%	-1705.4%	-1708.9%	-1712.4%	-1715.9%	-1719.4%	-1722.9%	-1726.4%	-1729.9%	-1733.4%	-1736.9%	-1740.4%	-1743.9%	-1747.4%	-1750.9%	-1754.4%	-1757.9%	-1761.4%	-1764.9%	-1768.4%	-1771.9%	-1775.4%	-1778.9%	-1782.4%	-1785.9%	-1789.4%	-1792.9%	-1796.4%	-1799.9%	-1803.4%	-1806.9%	-1810.4%	-1813.9%	-1817.4%	-1820.9%	-1824.4%	-1827.9%	-1831.4%	-1834.9%	-1838.4%	-1841.9%	-1845.4%	-1848.9%	-1852.4%	-1855.9%	-1859.4%	-1862.9%	-1866.4%	-1869.9%	-1873.4%	-1876.9%	-1880.4%	-1883.9%	-1887.4%	-1890.9%	-1894.4%	-1897.9%	-1901.4%	-1904.9%	-1908.4%	-1911.9%	-1915.4%	-1918.9%	-1922.4%	-1925.9%	-1929.4%	-1932.9%	-1936.4%	-1939.9%	-1943.4%	-1946.9%	-1950.4%	-1953.9%	-1957.4%	-1960.9%	-1964.4%	-1967.9%	-1971.4%	-1974.9%	-1978.4%	-1981.9%	-1985.4%	-1988.9%	-1992.4%	-1995.9%	-1999.4%	-2002.9%	-2006.4%	-2009.9%	-2013.4%	-2016.9%	-2020.4%	-2023.9%	-2027.4%	-2030.9%	-2034.4%	-2037.9%	-2041.4%	-2044.9%	-2048.4%	-2051.9%	-2055.4%	-2058.9%	-2062.4%	-2065.9%	-2069.4%	-2072.9%	-2076.4%	-2079.9%	-2083.4%	-2086.9%	-2090.4%	-2093.9%	-2097.4%	-2100.9%	-2104.4%	-2107.9%	-2111.4%	-2114.9%	-2118.4%	-2121.9%	-2125.4%	-2128.9%	-2132.4%	-2135.9%	-2139.4%	-2142.9%	-2146.4%	-2149.9%	-2153.4%	-2156.9%	-2160.4%	-2163.9%	-2167.4%	-2170.9%	-2174.4%	-2177.9%	-2181.4%	-2184.9%	-2188.4%	-2191.9%	-2195.4%	-2198.9%	-2202.4%	-2205.9%	-2209.4%	-2212.9%	-2216.4%	-2219.9%	-2223.4%	-2226.9%	-2230.4%	-2233.9%	-2237.4%	-2240.9%	-2244.4%	-2247.9%	-2251.4%	-2254.9%	-2258.4%	-2261.9%	-2265.4%	-2268.9%	-2272.4%	-2275.9%	-2279.4%	-2282.9%	-2286.4%	-2289.9%	-2293.4%	-2296.9%	-2300.4%	-2303.9%	-2307.4%	-2310.9%	-2314.4%	-2317.9%	-2321.4%	-2324.9%	-2328.4%	-2331.9%	-2335.4%	-2338.9%	-2342.4%	-2345.9%	-2349.4%	-2352.9%	-2356.4%	-2359.9%	-2363.4%	-2366.9%	-2370.4%	-2373.9%	-2377.4%	-2380.9%	-2384.4%	-2387.9%	-2391.4%	-2394.9%	-2398.4%	-2401.9%	-2405.4%	-2408.9%	-2412.4%	-2415.9%	-2419.4%	-2422.9%	-2426.4%	-2429.9%	-2433.4%	-2436.9%	-2440.4%	-2443.9%	-2447.4%	-2450.9%	-2454.4%	-2457.9%	-2461.4%	-2464.9%	-2468.4%	-2471.9%	-2475.4%	-2478.9%	-2482.4%	-2485.9%	-2489.4%	-2492.9%	-2496.4%	-2499.9%	-2503.4%	-2506.9%	-2510.4%	-2513.9%	-2517.4%	-2520.9%	-2524.4%	-2527.9%	-2531.4%	-2534.9%	-2538.4%	-2541.9%	-2545.4%	-2548.9%	-2552.4%	-2555.9%	-2559.4%	-2562.9%	-2566.4%	-2569.9%	-2573.4%	-2576.9%	-2580.4%	-2583.9%	-2587.4%	-2590.9%	-2594.4%	-2597.9%	-2601.4%	-2604.9%	-2608.4%	-2611.9%	-2615.4%	-2618.9%	-2622.4%	-2625.9%	-2629.4%	-2632.9%	-2636.4%	-2639.9%	-2643.4%	-2646.9%	-2650.4%	-2653.9%	-2657.4%	-2660.9%	-2664.4%	-2667.9%	-2671.4%	-2674.9%	-2678.4%	-2681.9%	-2685.4%	-2688.9%	-2692.4%	-2695.9%	-2699.4%	-2702.9%	-2706.4%	-2709.9%	-2713.4%	-2716.9%	-2720.4%	-2723.9%	-2727.4%	-2730.9%	-2734.4%	-2737.9%	-2741.4%	-2744.9%	-2748.4%	-2751.9%	-2755.4%	-2758.9%	-2762.4%	-2765.9%	-2769.4%	-2772.9%	-2776.4%	-2779.9%	-2783.4%	-2786.9%	-2790.4%	-2793.9%	-2797.4%	-2800.9%	-2804.4%	-2807.9%	-2811.4%	-2814.9%	-2818.4%	-2821.9%	-2825.4%	-2828.9%	-2832.4%	-2835.9%	-2839.4%	-2842.9%	-2846.4%	-2849.9%	-2853.4%	-2856.9%	-2860.4%	-2863.9%	-2867.4%	-2870.9%	-2874.4%	-2877.9%	-2881.4%	-2884.9%	-2888.4%	-2891.9%	-2895.4%	-2898.9%	-2902.4%	-2905.9%	-2909.4%	-2912.9%	-2916.4%	-2919.9%	-2923.4%	-2926.9%	-2930.4%	-2933.9%	-2937.4%	-2940.9%	-2944.4%	-2947.9%	-2951.4%	-2954.9%	-2958.4%	-2961.9%	-2965.4%	-2968.9%	-2972.4%	-2975.9%	-2979.4%	-2982.9%	-2986.4%	-2989.9%	-2993.4%	-2996.9%	-3000.4%	-3003.9%	-3007.4%	-3010.9%	-3014.4%	-3017.9%	-3021.4%	-3024.9%	-3028.4%	-3031.9%	-3035.4%	-3038.9%	-3042.4%	-3045.9%	-3049.4%	-3052.9%	-3056.4%	-3059.9%	-3063.4%	-3066.9%	-3070.4%	-3073.9%	-3077.4%	-3080.9%	-3084.4%	-3087.9%	-3091.4%	-3094.9%	-3098.4%	-3101.9%	-3105.4%	-3108.9%	-3112.4%	-3115.9%	-3119.4%	-3122.9%	-3126.4%	-3129.9%	-3133.4%	-3136.9%	-3140.4%	-3143.9%	-3147.4%	-3150.9%	-3154.4%	-3157.9%	-3161.4%	-3164.9%	-3168.4%	-3171.9%	-3175.4%	-3178.9%	-3182.4%	-3185.9%	-3189.4%	-3192.9%	-3196.4%	-3199.9%	-3203.4%	-3206.9%	-3210.4%	-3213.9%	-3217.4%	-3220.9%	-3224.4%	-3227.9%	-3231.4%	-3234.9%	-3238.4%	-3241.9%	-3245.4%	-3248.9%	-3252.4%	-3255.9%	-3259.4%	-3262.9%	-3266.4%	-3269.9%	-3273.4%	-3276.9%	-3280.4%	-3283.9%	-3287.4%	-3290.9%	-3294.4%	-3297.9%	-3301.4%	-3304.9%	-3308.4%	-3311.9%	-3315.4%	-3318.9%	-3322.4%	-3325.9%	-3329.4%	-3332.9%	-3336.4%	-3339.9%	-3343.4%	-3346.9%	-3350.4%	-3353.9%	-3357.4%	-3360.9%	-3364.4%	-3367.9%	-3371.4%	-3374.9%	-3378.4%	-3381.9%	-3385.4%	-3388.9%	-3392.4%	-3395.9%	-3399.4%	-3402.9%	-3406.4%	-3409.9%	-3413.4%	-3416.9%	-3420.4%	-3423.9%	-3427.4%	-3430.9%	-3434.4%	-3437.9%	-3441.4%	-3444.9%	-3448.4%	-3451.9%	-3455.4%	-3458.9%	-3462.4%	-3465.9%	-3469.4%	-3472.9%	-3476.4%	-3479.9%	-3483.4%	-3486.9%	-3490.4%	-3493.9%	-3497.4%	-3500.9%	-3504.4%	-3507.9%	-3511.4%	-3514.9%	-3518.4%	-3521.9%	-3525.4%	-3528.9%	-3532.4%	-3535.9%	-3539.4%	-3542.9%	-3546.4%	-3549.9%	-3553.4%	-3556.9%	-3560.4%	-3563.9%	-3567.4%	-3570.9%	-3574.4%	-3577.9%	-3581.4%	-3584.9%	-3588.4%	-3591.9%	-3595.4%	-3598.9%	-3602.4%	-3605.9%	-3609.4%	-3612.9%	-3616.4%	-3619.9%	-3623.4%	-3626.9%	-3630.4%	-3633.9%	-3637.4%	-3640.9%	-3644.4%	-3647.9%	-3651.4%	-3

CASE 10-D

TABLE 11-DIMENSIONLESS VERTICAL VELOCITY COMPONENT FIELD...DEFINED IN EQUATION (22)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	23.9%	.657	.603	.496	.385	.189	.004	.148	.343
		18.4%	5.3%	-12.4%	-70.0%	*****	41.2%	-30.5%	-45.9%
SURFACE	.000	1.103	1.832	2.236	2.477	2.287	1.889	1.038	.000
S/DEPTH=1.0	*****	16.3%	3.1%	-11.5%	-36.9%	-52.2%	-49.1%	-29.1%	*****
S/DEPTH= .9	*****	.521	1.010	1.038	2.042	.810	.800	.504	.000
	*****	-4.6%	-6.5%	-9.1%	-17.8%	-6.6%	-10.2%	-14.1%	*****
S/DEPTH= .8	*****	.156	.305	.443	.664	.287	.289	.186	.000
	*****	.2%	.5%	1.0%	3.1%	-6.6%	13.2%	12.0%	*****
S/DEPTH= .7	*****	.053	.104	.151	.230	14.2%	.104	.067	.000
	*****	*****	*****	15.7%	15.2%	.102	*****	*****	*****
S/DEPTH= .6	*****	.019	.036	.053	.081	*****	.037	.024	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .5	*****	.07	.13	.19	.29	*****	.015	.009	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .4	*****	.002	.005	.007	.010	.013	.005	.003	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .3	*****	.001	.002	.002	.004	.005	.002	.001	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .2	*****	.000	.000	.001	.001	.002	.001	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .1	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000	.000	.000
	*****	*****	*****	*****	*****	*****	*****	*****	*****

CASE 10=D

TABLE III=DIMENSIONLESS HORIZONTAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (23)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.496	.385	.189	.004	.148	.294	.343
	23.9%	18.4%	5.3%	-12.4%	-70.0%	*****	41.2%	-30.3%	-45.9%
SURFACE	*****	9.439	15.104	17.518	17.186	13.804	10.638	5.990	.000
S/DEPTH=1.0	*****	38.6%	26.2%	10.6%	24.0%	58.5%	66.4%	40.5%	*****
S/DEPTH= .9	*****	4.078	7.776	10.782	14.099	*****	4.900	3.005	.000
S/DEPTH= .8	*****	16.0%	13.3%	8.6%	7.1%	5.131	-12.9%	-20.2%	*****
S/DEPTH= .7	*****	1.059	2.067	2.976	4.362	-5.8%	1.806	1.146	.000
S/DEPTH= .6	*****	7.9%	7.0%	5.6%	1.3%	1.813	12.7%	10.2%	*****
S/DEPTH= .5	*****	.340	.668	.972	1.470	14.7%	.651	.420	.000
S/DEPTH= .4	*****	*****	*****	.337	.514	*****	*****	*****	*****
S/DEPTH= .3	*****	.117	.231	*****	*****	.230	.233	.152	.000
S/DEPTH= .2	*****	*****	.082	.119	.183	*****	*****	*****	*****
S/DEPTH= .1	*****	.041	*****	.043	.065	.082	.084	.054	.000
S/DEPTH= .0	*****	.015	.029	*****	*****	*****	*****	*****	.000
	*****	*****	.010	.015	.023	.029	.030	.019	.000
	*****	*****	*****	*****	*****	.011	*****	*****	.000
	*****	.002	.004	.005	.008	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.004	*****	.003	.000
	*****	.001	.001	.002	.003	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.002	*****	.001	.000
	*****	.000	.001	.001	.001	*****	*****	*****	.000
	*****	*****	*****	*****	*****	.001	*****	.001	.000
	*****	.000	.000	.000	.001	*****	*****	*****	.000
	*****	*****	*****	*****	*****	*****	*****	*****	.000

TABLE IV-DIMENSIONLESS VERTICAL ACCELERATION COMPONENT FIELD...DEFINED IN EQUATION (24)

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TABLE VI-DIMENSIONLESS INERTIA FORCE COMPONENT FIELD...DEFINED IN EQUATION (26)

THETA =	10.0	.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.546	.395	.189	*****	.004	.294	.343
	23.9%	18.4%	5.3%	12.4%	70.0%	*****	41.2%	30.3%	45.9%
SURFACE	.000	.638	1.071	1.319	1.479	1.378	1.145	.632	.000
S/DEPTH=1.0	*****	27.6%	17.0%	5.3%	14.8%	26.5%	23.2%	6.2%	*****
	.000	.313	.607	.864	1.228			.307	.000
S/DEPTH= .9	*****	12.8%	11.3%	9.0%	1.9%	.494	.488	6.3%	.000
	.000	.095	.186	.270	.405			.114	.000
S/DEPTH= .8	*****	18.0%	17.6%	17.0%	15.3%	12.5%	9.6%	27.0%	.000
	.000	.032	.063	.092	.141	.175	.177	.041	.000
S/DEPTH= .7	*****	.011	.022	.033	.050	.062	.063	.015	.000
	.000	.004	.008	.012	.018	.022	.023	.005	.000
S/DEPTH= .6	*****	.000	.000	.000	.000	.008	.008	.002	.000
	.000	.001	.003	.004	.006	.003	.003	.001	.000
S/DEPTH= .5	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.001	.001	.001	.002	.003	.003	.001	.000
S/DEPTH= .4	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.001	.001	.001	.001	.000
S/DEPTH= .3	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .2	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	.000	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE VII-DIMENSIONLESS DRAG MOMENT COMPONENT FIELD...DEFINED IN EQUATION (27)

THEY A =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.557	.603	.496	.385	.189	.004	.148	.0294	.343
	23.5%	18.4%	5.3%	12.4%	70.0%	*****	41.2%	30.3%	45.9%
SURFACE	1.152	.973	.669	.420	.129	.009	.010	.081	.120
S/DEPTH=1.0	*****	.12.6%	.41.7%	.76.9%	.147.2%	*****	*****	.16.4%	.2.9%
	*****	.280	.248	.200	.094	*****	*****	*****	*****
S/DEPTH= .9	*****	.30.7%	.34.6%	.41.4%	.66.8%	*****	*****	.016	.027
	*****	.029	.026	.022	.011	*****	*****	*****	*****
S/DEPTH= .8	*****	.003	.003	.002	.001	*****	*****	.0002	.003
	*****	.003	.003	.003	.001	*****	*****	*****	*****
S/DEPTH= .7	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .6	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .5	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .4	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .3	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .2	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .1	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****
S/DEPTH= .0	*****	.000	.000	.000	.000	*****	*****	.000	.000
	*****	.000	.000	.000	.000	*****	*****	*****	*****

TABLE VIII-DIMENSIONLESS INERTIA MOMENT COMPONENT FIELD...DEFINED IN EQUATION (28)

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TABLE IX-DIMENSIONLESS DYNAMIC PRESSURE COMPONENT FIELD...DEFINED IN EQUATION (29)

THETA =	0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
ETA/HEIGHT=	.657	.603	.496	.385	.189	.004	.148	.294	.543
	23.9%	18.4%	5.1%	-12.4%	-70.0%	*****	41.2%	30.3%	45.9%
SURFACE	1.299	1.213	1.019	.795	.381	.014	.298	.592	.697
S/DEPTH=1.0	23.0%	19.7%	12.1%	2.7%	-17.3%	*****	-3.4%	6.4%	13.1%
	.834	.812	.747	.646	.371				
S/DEPTH= .9	3.5%	2.7%	.3%	-3.8%	-20.8%	.053	.084	.261	.328
	.314	.308	.291	.264	.184				
S/DEPTH= .8	-6.7%	.73%	-9.12%	-12.5%	-27.2%	*****	101.1%	35.7%	28.5%
	.114	.112	.107	.098	.071	.026	.024	.090	.116
S/DEPTH= .7	-33.1%	-34.2%	-37.7%	-44.1%	-72.7%	*****	*****	109.1%	90.7%
	.041	.040	.038	.035	.026	.010	.008	.032	.041
S/DEPTH= .6	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.015	.014	.014	.013	.009	.004	.003	.011	.015
S/DEPTH= .5	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.005	.005	.005	.004	.003	.001	.001	.004	.005
S/DEPTH= .4	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.002	.002	.002	.001	.001	.000	.000	.002	.002
S/DEPTH= .3	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.001	.001	.000	.000	.000	.000	.000	.001	.001
S/DEPTH= .2	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .1	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000
S/DEPTH= .0	*****	*****	*****	*****	*****	*****	*****	*****	*****
	.000	.000	.000	.000	.000	.000	.000	.000	.000

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TABLE X-VARIABLES DEPENDING ONLY ON PHASE ANGLE

THETA	.0	10.0	20.0	30.0	50.0	75.0	100.0	130.0	180.0
(1) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	1.349	1.594	1.337	.710	.188	-.085	-.164	-.000
(2) DIMENSIONLESS KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(35)									
SURFACE	.000	-.000	-.000	.000	.000	.000	.000	-.000	-.000
(3) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
LINEAR WAVE THEORY REPRESENTATION... DEFINED IN EQ.(36)									
SURFACE	-.000	.006	.022	.046	.098	.121	.067	-.106	-.197
(4) DIMENSIONLESS DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR									
STREAM FUNCTION THEORY REPRESENTATION... DEFINED IN EQ.(37)									
SURFACE	.008	-.003	-.013	-.012	-.002	.003	.001	.002	.006

CASE 10=0

TABLE XI=OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

(1)	DIMENSIONLESS WAVE LENGTH DEFINED IN EQUATION (37)	1.222	(16.1%)
(2)	DIMENSIONLESS AVERAGE POTENTIAL ENERGY DEFINED IN EQUATION (38)	.392	(27.4%)
(3)	DIMENSIONLESS AVERAGE KINETIC ENERGY DEFINED IN EQUATION (39)	.444	(36.1%)
(4)	DIMENSIONLESS TOTAL AVERAGE ENERGY DEFINED IN EQUATION (40)	.836	(38.4%)
(5)	DIMENSIONLESS TOTAL AVERAGE ENERGY FLUX DEFINED IN EQUATION (41)	.531	(38.0%)
(6)	DIMENSIONLESS GROUP VELOCITY DEFINED IN EQUATION (42)	.635	(3%)
(7)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM DEFINED IN EQUATION (43)	.863	(17.4%)
(8)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX IN WAVE DIRECTION DEFINED IN EQUATION (44)	.580	(6.1%)
(9)	DIMENSIONLESS TOTAL AVERAGE MOMENTUM FLUX TRANSVERSE TO WAVE DIRECTION DEFINED IN EQUATION (45)	.049	(336.0%)

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TABLE XI(CONT)-OVERALL WAVE PARAMETERS... DO NOT DEPEND ON PHASE ANGLE OR ELEVATION

* (10) DIMENSIONLESS ROOT MEAN SQUARE KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	.671380	STREAM FUNCTION	.000000
(11) DIMENSIONLESS ROOT MEAN SQUARE DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.104352	STREAM FUNCTION	.005430
(12) DIMENSIONLESS MAXIMUM KINEMATIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (46) LINEAR	1.593790	STREAM FUNCTION	.000000
(13) DIMENSIONLESS MAXIMUM DYNAMIC FREE SURFACE BOUNDARY CONDITION ERROR DEFINED IN EQUATION (47) LINEAR	.197350	STREAM FUNCTION	.013568
(14) DIMENSIONLESS KINEMATIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (48) LINEAR	.912193	STREAM FUNCTION	.738335
(15) DIMENSIONLESS DYNAMIC FREE SURFACE BREAKING PARAMETER DEFINED IN EQUATION (49) LINEAR	.411345	STREAM FUNCTION	.521853

<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>	<p>Dean, Robert G. Evaluation and development of water wave theories for engineering applications. Fort Belvoir, Va., U.S. Coastal Engineering Research Center, 1974.</p> <p>2v. illus., charts. (U.S. Coastal Engineering Research Center. Special report no. 1) (U.S. Coastal Engineering Research Center. Contract DACW72-67-C-0009). Bibliography: p.97-98.</p> <p>Report in two volumes. Volume I presents the results of a research program to evaluate and develop water wave theories for engineering application. Volume II presents wave tables developed for preliminary design in offshore problems.</p> <p>1. Water waves - Mathematical analysis. 2. Wave theory. 3. Water waves - Tables. 4. Coastal engineering. I. Title. (Series) (Contract)</p> <p>TC203 .U581sr no. 1 627 .U581sr</p>
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